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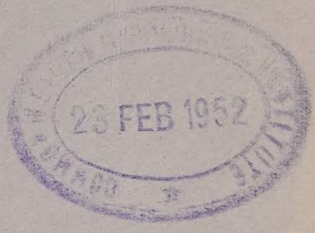

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Journal of the National Cancer Institute. U.S.A.
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Journal of the South African Veterinary Medical Association. S. Africa.
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Journal of the Veterinary Association of Thailand. Thailand.
Journal of Wildlife Management. U.S.A.
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Michigan State College Veterinarian. U.S.A.
Mikrobiologiya, Moscow. Russia.
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Revista de Medicina Veterinaria y Parasitologia. Venezuela.
Revista Militar de Remonta e Veterinaria. Brazil.
Revista de Sanidad Veterinaria. Spain.
Revue Canadienne de Biologie. Canada.
Revue d'Elevage et de Médecine Vétérinaire des Pays Tropicaux. France.
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La Revue de Pathologie Comparée et d'Hygiène Générale. France.
Revue Vétérinaire Militaire. France.
The Rhodesia Agricultural Journal. S. Rhodesia.
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Scientific Agriculture. Canada.
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Scottish Agriculture. Gt. Britain.
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Stain Technology. U.S.A.
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Transactions of the Highland and Agricultural Society of Scotland. Gt. Britain.
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United Provinces Veterinary Magazine. India.
United States Armed Forces Medical Journal. U.S.A.
University of Pennsylvania Bulletin. (Veterinary Extension Quarterly.) U.S.A.
Veteran. Gt. Britain.
Veterin-Extracta. Spain.
Veterinária. (Revista dos Alunos da Escola Nacional de Veterinária.) Brazil.
Veterinariya, Moscow. Russia.
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Veterinary Record. Gt. Britain.
Veterinary Review. India.
Veterinary Student. See Iowa State College Veterinarian. U.S.A.
La Vida Agricola. (Revista de Agricultura y Ganaderia.) Peru.
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Vlaams Diergeneeskundig Tijdschrift. Belgium.
West African Medical Journal. Nigeria.

Wiener Tierärztliche Monatsschrift. Austria.
World's Poultry Science Journal. U.S.A.
Yale Journal of Biology and Medicine. U.S.A.
Zeitschrift für Hygiene und Infektionskrankheiten. Germany.
Zeitschrift für Krebsforschung. Germany.
Zeitschrift für Parasitenkunde. Germany.
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Zentralblatt für Allgemeine Pathologie und Pathologische Anatomie. Germany.
Zentralblatt für Bacteriologie, Parasit. Infekt. und Hyg. Originale: Referate. Germany.
Zhurnal Mikrobiologii. Russia.
Zooprofilassi. (Rivista Mensile di Scienza e Tecnica Veterinaria.) Italy.
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Zootecnia e Veterinaria—La Fecondazione Artificiale. Italy.

(b) ANNUAL REPORTS OF GOVERNMENT DEPARTMENTS AND RESEARCH INSTITUTES ETC.

Note: As these are all reports the word "Report" is omitted in this list.

INTERNATIONAL

Work of the F.A.O.
Bureau Permanent Interafricain de la Tse-Tse et de la Trypanosomiase.

EUROPE

British Commonwealth and Empire

Great Britain.
- Proceedings under the Diseases of Animals Act.
- Agricultural Research Council.
- Colonial Research.
- Colonial Research Committee Progress Report.
- Colonial Development Corporation Reports and Accounts.
- Select Committee on Estimates.
- Ministry of Health.
- Medical Research Council.
- Agricultural Improvement Council for England and Wales.
- The Animal Health Trust.
- Royal Veterinary College and Hospital.
- London School of Hygiene and Tropical Medicine.
- Lister Institute of Preventive Medicine.
- Royal College of Surgeons of England Scientific Report.
- University of London. The College of the Pharmaceutical Society of Great Britain.
- British Empire Cancer Campaign.
- Universities Federation for Animal Welfare.
- National Institute for Research in Dairying, University of Reading.
- Northern Counties Animal Diseases Research Fund. Memorial to Alan, 8th Duke of Northumberland ("The Duke's Fund") Sheep and Lamb Diseases.
- City of Leeds. Annual Report of the Medical Officer of Health.
- City of Manchester Markets Committee.
- City and County of Newcastle-upon-Tyne. Veterinary Department.
- Animal Diseases Research Association. Moredun Institute, Edinburgh.
- Belfast, City Veterinarian.
- Department of Health for Scotland.
- Royal College of Physicians of Edinburgh. Curator of Laboratory.
- Highland and Agricultural Society of Scotland.
- Edinburgh. Veterinary Department.
- Edinburgh and East of Scotland College of Agriculture.
- The West of Scotland Agricultural College, Glasgow.
- The Hannah Dairy Research Institute.

Northern Ireland.
- Ministry of Agriculture.
- Belfast, City Veterinarian.
- Agricultural Research Institute, Hillsborough.

Isle of Man.
- Report on Animals and on the Administration of the Cattle Diseases (Prevention) Acts, the Cattle Subsidy Schemes, and the Fat Stock (Regulation of Sale) Orders, together with Agricultural Statistics.

Malta.
- Department of Agriculture.

Republic of Ireland

- Minister of Agriculture and Veterinary College of Ireland.
- Diseases of Animals Acts, Quarterly Statistics.
- Medical Research Council.
- Dublin County Council. County Medical Officer of Health.

European Continental Countries

Belgium.
- Institut pour la Recherche Scientifique en Afrique Centrale.

Denmark.
- Aarsberetning fra Veterinaer Direktoratet.
- Meddelelse fra Kanin Kontrol Stationen.
- Beretning om Sammenlignende Forsøg med Svin fra Statsanerkendte Avlscentre.

Finland.
- Eläinlääkintölaitos Maatalousministeriön Eläinlääkintöosaston kertomus Vuosilta.

Italy.
- Istituto Zooprofilattico Sperimentale delle Venezie, Università degli Studi di Padova.

Netherlands.
- Verslag van den Directeur van den Vee Artsenijkundigen Dienst omtrent de Werkzaamheden van den Veeartsenijkindigen Dienst end den Gezondheidstoestand van den Veestapel.
- Verslag over de Werkzaamheden van het Staatsveeartsenijkundig Onderzoekings Instituut.
- Verslag van den Veterinair Hoofdinspector van de Volksgezondheid belast met het toezicht op Naleving van de Vleeschkeuringswet.
- Verslag van de Werkzaamheden der Rijksseruminrichting.

Verslagenen Mededeelingen van de Directie van den Landbouw. (Verslag over den Landbouw in Nederland.)
Jaarverslag van de Provinciale Gezondheidsdienst voor Dieren in Zuid Holland.
Mededeelingen betreffende den Gezondheidsdienst voor Vee in Friesland.
Norway.
Veterinaervesenet. Norges øffisielle Statistikk.
Sweden.
Det Civila Veterinärväsendet. Sveriges Officiella Statistik.
Veterinärvård vid Armén. Sveriges Officiella Statistik, Hälso- och Sjukvård.
Meddelanden från Kungl. Veterinärhögskolan, Stockholm.
Meddelanden från Statens Veterinär-Medicinska Anstalt, Stockholm.
Hälso- och Sjukvård vid Försvaret av Försvarets Sjukvårds-förvaltning.

ASIA

British Commonwealth and Empire

Ceylon.
Director of Agriculture.
Cyprus.
Chief Veterinary Officer.
Hong Kong.
Government Veterinary Surgeon, Hong Kong.
India.
Indian Council of Agricultural Research.
Indian Institute of Veterinary Research, Muktesar and Izatnagar.
Indian Dairy Department.
Civil Veterinary Department, Bombay Province.
Civil Veterinary Department, Assam.
Civil Veterinary Department, Orissa.
Civil Veterinary Department, East Punjab.
Animal Husbandry Department, United Provinces.
Malaya.
Veterinary Department, Malaya.
Pakistan.
Assistant Veterinary Investigation Officer (Poultry) Province of Sind.
Civil Veterinary Department, Sind.
Baluchistan Agency.

Other Countries

Japan.
Government Experimental Station for Animal Hygiene.

AFRICA

British Commonwealth and Empire

Union of South Africa.
Director of Abattoir, Livestock Markets, Veterinary Services, Ice and Cold Storage Department, Johannesburg.
South African Institute for Medical Research.
Southern Rhodesia.
Director of Veterinary Services.
Director of Veterinary Research.
Division of Entomology.
Anglo-Egyptian Sudan.
Sudan Veterinary Service.
Basutoland.
Department of Agriculture.
Bechuanaland Protectorate.
Veterinary Department.
Gambia.
Department of Agriculture.
Gold Coast.
Department of Animal Health.
Kenya.
East African Veterinary Research Organisation.
Department of Veterinary Services.
Mauritius.
Department of Agriculture.
Nigeria.
Veterinary Department, Northern Provinces.
Sleeping Sickness Service.
Northern Rhodesia.
Veterinary Department.
Game and Tsetse-Control Department.
Nyasaland Protectorate.
Veterinary Department.
Seychelles.
Department of Agriculture.
Sierra Leone.
Veterinary Department.
Somaliland Protectorate.
Veterinary Report.
Swaziland.
Livestock and Agricultural Department.
Department of Native Land Settlement.
Tanganyika Territory.
Department of Veterinary Science and Animal Husbandry.
Tsetse Research Department.
Uganda Protectorate.
Veterinary Department.
Zanzibar.
Annual Report of the Department of Agriculture.

Belgian Territories

Institut pour la Recherche Scientifique en Afrique Centrale.

French Union

L'Institut Pasteur du Maroc.
L'Institut Pasteur de Brazzaville Congo.
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AMERICA

British Commonwealth and Empire

Canada.
Veterinary Director General, Production Service of Agriculture.
Science Service, Dominion Department of Agriculture.
National Research Council. Review.
National Research Council of Canada.
Minister of Agriculture, Dominion of Canada.
Fur Farms of Canada.
Alberta. Department of Agriculture.
British Columbia. Department of Agriculture. Agricultural Statistics. Provincial Game Commission Report.
Crops, Livestock etc., Manitoba.
Department of Agriculture of the Province of New Brunswick.
Department of Agriculture, Province of Nova Scotia.

Ontario Veterinary College.
Department of Agriculture of the Province of Prince Edward Island.
Minister of Agriculture of the Province of Quebec.
Department of Agriculture for Saskatchewan.

Bermuda.
Department of Agriculture.

British Guiana.
Livestock and Veterinary Division.
Director of Agriculture.
Crop and Livestock Census.

British Honduras.
Department of Agriculture. Survey of the Livestock Industry by the Veterinary Officer.

Falkland Islands.
Department of Agriculture.
Stock Returns.

Bahamas.
Agricultural and Marine Products Board.

Jamaica.
Veterinary and Livestock Divisions Department of Agriculture.

Leeward Islands.
Veterinary Officer, Antigua.
Director of Agriculture.

Trinidad.
Director of Agriculture.
Director of Medical Services.

Windward Islands.
Agricultural Department, Dominica.
Agricultural Department, Grenada.
Department of Agriculture, St. Lucia.
Advisory Department of the Imperial College of Tropical Agriculture, St. Lucia.
Agricultural Department, St. Vincent.

FRENCH UNION

L'nstitut Pasteur de Guyane Française et du Territoire de l'Inini.

UNITED STATES OF AMERICA

Secretary of Agriculture. U.S. Department of Agriculture, Washington, D.C.
Bureau of Animal Industry, Department of Agriculture.
National Livestock Loss Prevention Board.
Administrator of Agricultural Research.
Agricultural Experiment Stations.
Conference of Laboratory Workers in Pullorum Disease Control.
Participation in the National Poultry Improvement Plan. Bureau of Animal Industry.
Surgeon General of the Public Health Service of the U.S.A.
Surgeon General, U.S. Army. (War Department.)
Gorgas Memorial Laboratory, Washington, D.C.
Bureau of Dairy Industry, Agricultural Research Administration.
Bureau of Entomology and Plant Quarantine.
Rockefeller Foundation. International Health Division.
Commonwealth Fund.
Agricultural Experiment Station of Alabama.
University of Arizona, College of Agriculture, Agricultural Experiment Station, Tucson, Arizona.
University of Arkansas College of Agriculture, Agricultural Experiment Station.
Livestock Department, Los Angeles County, California.
State of California, Department of Agriculture.
Agricultural Experiment Station, College of Agriculture, University of California.
Colorado Agricultural Experiment Station.
Storrs Agricultural Experiment Station, Connecticut.
Connecticut Agricultural Experiment Station, New Haven.
Connecticut State Entomologist.
University of Delaware, Agricultural Experiment Station.
University of Florida, Agricultural Experiment Station.
Georgia Experimental Station of the University System of Georgia.
Georgia Coastal Plain Experiment Station.
Agricultural Experiment Station. University of Idaho.
University of Illinois. Agricultural Experiment Station.
Purdue University, Indiana. Agricultural Experiment Station, Lefayette.
Agricultural Research. Iowa State College of Agriculture.
Manhattan, Kansas. Agricultural Experiment Station.
Agricultural Experiment Station of the University of Kentucky.
Agricultural Experiment Station, Louisiana State University and Agricultural and Mechanical College.
North-East Louisiana Experiment Station. (Biennial.)
North Louisiana Experiment Station. (Biennial.)
Maine Agricultural Experiment Station.
Agricultural Experiment Station, University of Maryland.
Massachusetts Agricultural Experiment Station.
School of Veterinary Medicine, Michigan State College, East Lansing.
State Board of Agriculture of the State of Michigan.
Agricultural Experiment Station Michigan State College of Agriculture.
Regional Poultry Research Laboratory, Michigan.
Agricultural Experiment Station, University of Minnesota.
Mississippi Experiment Station.
Missouri Agricultural Experiment Station.
Livestock Sanitary Board, Montana.
Montana Agricultural Experiment Station.
State Entomologist of Montana.
Agricultural Experiment Station, Nebraska.
State of Nevada. State Department of Agriculture. (Biennial.)
New Hampshire Agricultural Experiment Station.
New Jersey State Agricultural Experiment Station.
Agricultural Experiment Station of the New Mexico College of Agriculture and Mechanic Arts.
New York State Veterinary College at Cornell University.

New York Agricultural Experiment Station.
New York State Association of Milk Sanitarians.
North Carolina Agricultural Experiment Station.
Experiment Station Progress, North Dakota. Agricultural College.
Ohio Agricultural Experiment Station, Wooster.
Ohio Agricultural Statistics.
Oklahoma Agriculture and Mechanic Arts College, Agricultural Experiment Station.
Oregon State College, Agricultural Experiment Station. (Biennial.)
Pensylvanian Agricultural Experiment Station.
Rhode Island State College, Agricultural Experiment Station.
South Carolina Experiment Station, Clemson Agricultural College.
South Dakota Agricultural Experiment Station.
University of Tennessee Agricultural Experiment Station.
Texas Agricultural Experiment Station.
Utah Agricultural Experiment Station (Biennial).
Vermont Agricultural Experiment Station, University of Burlington, Vermont.
Virginia Agricultural Experiment Station.
State College of Washington, Agricultural Experiment Station.
Western Washington Experiment Station.
West Virginia Agricultural Experiment Station.
University of Wisconsin, Madison, Agricultural Experiment Station.
Wyoming Agricultural Experiment Station.
Puerto Rico Experiment Station.
Virgin Islands.
Hawaii Agricultural Experiment Station.

AUSTRALASIA AND OCEANIA

British Commonwealth and Empire

Australia.
- Commonwealth Scientific and Industrial Research Organization.
- Australian Wool Board.
- Live Stock Diseases. New South Wales.
- Northern Territory Administration. Animal Industry Division.
- Queensland. Division of Animal Industry.
- "Stock and Brands" Department, South Australia.
- The Institute of Medical and Veterinary Science, South Australia.
- Department of Agriculture, Western Australia.

New Zealand.
- Department of Scientific and Industrial Research.
- Animal Research Division of the Department of Agriculture.
- Livestock Division, Department of Agriculture.
- New Zealand Society of Animal Production.
- Dairy Board.
- Canterbury Agricultural College, University of New Zealand.
- Cawthron Institute.

Tasmania.
- Animal Health Service, Department of Agriculture.

Fiji.
- Veterinary Division, Department of Agriculture.

PLAN OF ARRANGEMENT OF ABSTRACTS IN THE VETERINARY BULLETIN

The following is a guide to the order of abstracts in the *Veterinary Bulletin*. For diagnosis and iagnostic agents (tuberculin etc.) see under appropriate disease. The guide is necessarily limited to ey words and frequently occurring items.

Abstracts are serially numbered and cross-referenced by number among the twenty-one different ections.

I. Diseases Caused by Bacteria and Fungi

AEROBES
- Cocci
  - Staphylococci
  - Streptococci
  - Mastitis (under appropriate causal agent)
  - Strangles
  - Micrococci (including Botryomycosis)
  - Vibrios
  - Spirilla
- Bacilli
  - Anthrax
- Mycobacteria
  - Tuberculosis
  - Johne's disease
- Corynebacteria
  - Caseous lymphadenitis
  - Ulcerative lymphangitis
- *Pfeifferella mallei* (Glanders)
- *Erysipelothrix rhusiopathiae* (Swine Erysipelas)
- *Erysipelothrix (Listeria) monocytogenes*
- *Pasteurella*
  - Haemorrhagic septicaemia
- *Pseudomonas*
- *Haemophilus*
- *Proteus*
- Colon-Typhoid Group
- Salmonella Group
  - Infection in mammals
    - Abortion in mares
    - Abortion in ewes
    - Porcine enteritis
  - Infection in birds
    - Pullorum disease (B.W.D.)
    - Fowl typhoid
  - Meat poisoning infections
- Brucella Group
  - *Br. abortus*
  - *Br. suis*
  - *Br. melitensis*
  - *Br. tularensis*

Spirochaetes
- *Leptospira*

ANAEROBES
- Clostridia
  - Blackleg
  - Malignant oedema
  - Clostridial infections of sheep
  - Tetanus
  - Botulism
- Vibrios
- *Fusiformis*

FUNGI
- *Mucor*
- *Coccidioides*
- *Histoplasma*
  - *Histoplasma capsulatum*
  - *Histoplasma farciminosum* (Epizootic Lymphangitis)
- Ringworm
- *Aspergillus*
- *Actinomyces*
- *Actinobacillus*

PLEURO-PNEUMONIA GROUP
- Bovine Contagious Pleuro-Pneumonia
- Pleuro-Pneumonia-Like Organisms including Contagious Agalactia of Goats and Sheep

BACTERIAL FLORA OF ANIMAL TISSUES

METABOLISM AND NUTRITION OF MICRO-ORGANISMS

VARIOUS OTHER UNCLASSIFIED MICRO-ORGANISMS
- *Bartonella*
- *Eperythrozoon*
- *Grahamella*

II. Diseases Caused by Protozoan Parasites

- Amoebiasis
- Trypanosomiasis
- Leishmaniasis
- Trichomoniasis
- Blackhead of Turkeys *(Histomonas meleagridis)*
- Infectious Enteritis of Turkeys *(Hexamita)*
- Coccidiosis
- Malaria
- Piroplasmosis
- Theileriasis
- Anaplasmosis
- Toxoplasmosis

III. Diseases Caused by Viruses and Rickettsia.

Virus Infections not Limited to Single Species
- Foot and mouth disease
- Aujeszky's disease
- Rabies
- Pox diseases
- Influenza group
- Encephalitis group
  - Equine encephalomyelitis

Virus Diseases of Equines
- Respiratory infections
- Equine infectious anaemia
- African horse sickness
- Virus abortion

Virus Diseases of Cattle
- Rinderpest
- Bovine malignant catarrh
- Three-day fever
- Respiratory infections

Virus Diseases of Sheep and Goats
- Bluetongue
- Contagious ecthyma
- Louping ill

Virus Diseases of Swine
- Swine fever
- Porcine encephalomyelitis (Teschen disease)
- Vesicular exanthema

Virus Diseases of Carnivora
- Of dogs
- Of cats
- Of foxes
- Of other Carnivora

Virus Diseases of Rodents

Virus Diseases of Birds
- Fowl plague
- Newcastle disease

Respiratory infections
Psittacosis
Virus Diseases of Man
Bacteriophage
Rickettsial Infections
Heartwater
Rickettsial conjunctivitis

IV. **Immunity**
General Immunology
Immunization and Immunizing Agents
Serology
Allergy and Anaphylaxis
Tissue Invasiveness (Permeability)
Various

V. **Parasites in Relation to Disease [General]**

VI. **Parasites in Relation to Disease [Arthropods]**
Lice
Bugs
Fleas
Dipterous Flies
Blowflies and fleshflies
Oestrids (warbleflies and botflies)
Biting muscids *(Stomoxys, Siphona, Glossina)*
Tabanids
Midges
Mosquitoes
Sheep ked
Pentastomes
Linguatula
Ticks
Mites

VII. **Parasites in Relation to Disease [Helminths]**
TREMATODES
CESTODES
Taenia
Cysticercosis
Echinococcosis
NEMATODES
Strongyloides
Trichurids
Trichinosis
Strongyles
Sclerostomes
Hookworms
Parasitic gastro-enteritis
Lungworms
Poultry gapeworm
Oxyurids
Ascarids
Spirurids
Filariae
Acanthocephala

VIII. **Spontaneous and Transmissible Neoplasms and Leucaemias [Including Fowl Paralysis]**
Spontaneous Tumours
Cancer Research
Virus Tumours of Rodents
Fowl Sarcoma
Fowl Paralysis

IX. **Nutritional and Metabolic Disorders**
General Nutrition
Carbohydrates, Fats, Proteins, Amino Acids, etc.
Minerals
Osteodystrophia and Rickets
Vitamins
Metabolic Disorders

X. **Diseases, General**
General and Collective
Special Animal Pathology—Unclassified Diseases of Particular Animals
Haematology
Special Regional Pathology—Unclassified Diseases of Particular Body Systems
Histopathology

XI. **Poisons and Poisoning**
Inorganic
Organic and Alkaloid
Plant Poisons
Photosensitization
Poisoning by Ingestion of Arthropods
Venoms
Poisoning by Therapeutic Agents
Miscellaneous including War Gases

XII. **Pharmacology and General Therapeutics**
(For treatment of specific infections see under the appropriate disease.)
General Chemotherapy and Pharmacology
Antibiotics
Treatment of Unclassified Diseases
Vitamin Therapy
Hormone Therapy
Antidotes
Anaesthesia
Wound Treatment
Antiseptics and Disinfectants

XIII. **Physiology, Anatomy and Biochemistry**
General
Enzymes
Metabolism
Lactation
Normal Haematology and Blood Groups
Regional Physiology (Circulatory, Digestive, Respiratory, Nervous, Skeletal, Urino-Genital and Endocrine Systems)
Wound Healing
Anatomy
Biochemistry

XIV. **Public Health, Veterinary Services and Veterinary Education**
Milk Hygiene
Meat Hygiene
Food Poisoning
Rodent Control
Legislation and Veterinary Police Measures
Education

XV. **Livestock Hygiene**
Farm Buildings
Ventilation
Drainage
Disinfection
Water Supply
Pastures and Grazing
Conservation of Foodstuffs and Fodder

XVI. **Reproduction and Reproductive Disorders**
Artificial Insemination
Pregnancy Diagnosis
Sex Hormones
Sterility and Infertility
Hereditary Diseases
Lethal Factors and Teratology
Management of Breeding Stock

XVII. **Zootechny**
Acclimatization
Marking and Identification of Livestock
Dips and Dipping Tanks
Dehorning
Shearing
Castration
Hides and Skins
Humane Slaughter
Various

XVIII. **Technique and Apparatus**
Bacteriological
Parasitological
Microscopy and Optics
Histological
Laboratory, Various

XIX. **Miscellaneous**

XX. **Reports** (of State and Local Government Departments and of Institutes, Schools, and Other Corporate Bodies)

XXI. **Book Reviews**

COMMONWEALTH BUREAU OF ANIMAL HEALTH

THE

VETERINARY BULLETIN

Vol. 22] January, 1952 [No. 1

DISEASES CAUSED BY BACTERIA AND FUNGI

SEETHARAMAN, C. & SHARMA, G. L. (1949.) ***Staphylococcus* infection in chicks.**—*Indian J. vet. Sci.* **19.** 215-217. **1**

After immunization against Newcastle disease, progressive lameness with swelling of tibio-metatarsal joints occurred in six-week-old chicks. A coagulase producing haemolytic type of *Staph. albus* was isolated in acute cases from the heart blood and in chronic cases from the joints of both vaccinated and unvaccinated chicks.

The disease was reproduced by inoculating young chicks and adult fowls with cultures. The coagulase and haemolytic tests were negative.—B. M. THAKRAL.

PILLET, J., ORTA, B., ISBIR, S. & MERCIER, P. (1950.) Les toxines des staphylocoques d'origine animale. Préparation et titrage de la toxine β. [**β toxin from staphylococci of animal origin.**]—*Bull. Acad. vét. Fr.* **23.** 403-407. **2**

Specific flocculation of α toxin from a mixture of α and β toxins was the best method of isolating β toxin. Heating or the action of formalin, involved considerable loss of β toxin.
—G. DAVIES.

ERLANSON, P. (1951.) **Determination of the sensitivity *in vitro* of bacteria to chemotherapeutic agents.**—*Acta path. microbiol. scand.* Suppl. No. 85. pp. 162. [In English.] **3**

A comprehensive study of factors influencing sensitivity determinations was recorded, with a view to standardizing reported results. *Staphylococcus aureus, Bacterium coli, Pseudomonas pyocyanea,* enterococci and *Proteus* were tested with streptomycin, aureomycin, penicillin, chloromycetin and sulphathiazole. Placenta broth at pH 7·2–7·4 was the best standard medium. Agar cup methods were found to be accurate; antagonism and resistant strains were also studied.—JOHN SEAMER.

HOEKSTRA, J. (1950.) Routine-onderzoek van melkmonsters bij *Str. agalactiae* infecties. [**Routine examination of milk samples in *Streptococcus agalactiae* infection.**]—*Tijdschr. Diergeneesk.* **75.** 561-574. **4**

Routine diagnosis of *Str. agalactiae* infection in milk samples by the Hotis test, microscopic examination, cell counts and plate culture on Edward's medium yielded better results than plating on serum agar or tryptose agar.
—C. A. VAN DORSSEN.

BERGER, J. & FRANCIS, J. (1951.) **Mastitis in practice. I. Epizootiology and bacteriology. II. Treatment and control with special reference to sulphone.**—*Vet. Rec.* **63.** 283-293; 305-310. **5**

I. A study on mastitis was made over the period 1945-46-47 in which records were made on 83 herds by one observer of all cases, accompanied by bacteriological examination. Nearly one quarter of the cows were treated over the whole period; the annual treatment rate was 7·2%.

There was little correlation between the numbers of any given organism found in the secretion and the severity of clinical symptoms. There was no indication that mastitis was relatively more common in lactating Ayrshire cows than in Shorthorns or Friesians. Seasonal factors must influence the incidence of the disease since mastitis was much more prevalent during the third quarter of the year than in any other. Insect vectors may be responsible for transmission; biting flies have been known to infect heifers—but the authors consider that other sources of infection operate. All forms of mastitis were less common in May and June. The incidence of mastitis is high during the first month after calving and during the preceding three months of the dry period.

NOTE.—*The* V.B. *references given in square brackets now refer to abstract numbers and not to page numbers.*

Data including many graphs and tables were given.

II. Dealt with the concurrent observations on the treatment and control of mastitis. Of 54 dry quarters infected with *Streptococcus agalactiae* 96·3% recovered with a single dose of sulphine (4:4′-diaminodiphenyl sulphone)-penicillin and the two remaining quarters recovered with a second injection. Of 60 lactating quarters 48 recovered with one injection which was left in for 40 hours and five others after they had been treated a second time. Good results were also obtained with sulphone in oil, in dry cows, but the results were less satisfactory in lactating cows.

It was decided that a dose of 4 g. of sulphone combined with 50,000 units of penicillin was preferable to 100,000 units of procaine-penicillin for treatment of most cases of mastitis in lactating and in dry cows, this being particularly valuable in cows that develop mastitis when being dried off.

Herds may become free of *Str. agalactiae* infection following routine treatment carried out over a period of time.—E.M.J.

Hulse, E. C. & Lancaster, J. E. (1951.) **The treatment with nisin of chronic bovine mastitis caused by *Str. uberis* and staphylococci.**—*Vet. Rec.* **63.** 477-480. [Abst. from authors' summary.] 6

A single dose of nisin was administered to 15 quarters of cows infected with *Str. uberis* and 14 quarters infected with haemolytic staphylococci. In one herd, five quarters remained free from infection with *Str. uberis* up to five months and one quarter for the four months that it was under observation. One cow did not respond to two re-treatments and another responded to aureomycin injections after nisin re-treatment had failed. In another herd, two quarters were free from infection after 13 weeks and two quarters were not re-infected until ten weeks after treatment. In another herd, seven quarters infected with haemolytic staphylococci did not respond well to nisin treatment and 50% of treated quarters were re-infected within one week. Six quarters remained free from infection up to three months after treatment. Some depression in the milk yield during the week of treatment was recorded.

Eagle, H., Fleischman, R. & Musselman, A. D. (1950.) **The effective concentrations of penicillin *in vitro* and *in vivo* for streptococci, pneumococci, and *Treponema pallidum*.**—*J. Bact.* **59.** 625-643. 7

Procaine penicillin G (in peanut oil with 2% aluminium monostearate added to form a gel) was the preparation of choice. In mice, concentrations of 0·012-0·080 μg. per ml. were effective for Group A or Group B streptococci and type III *Streptococcus pneumoniae;* in rabbits, 0·07–0·12 μg. per ml. were effective against Group B streptococci and 0·005–0·010 μg. per ml. against *T. pallidum*. The *in vivo* concentrations are 2–5 times as effective as *in vitro* concentrations.—Malcolm Woodbine.

Cole, A. C. E. (1951.) **Cutaneous anthrax in Dar-es-Salaam.**—*Brit. med. J.* May 19th. p. 1124. 8

Cases of cutaneous anthrax are reported among hide porters at Dar-es-Salaam handling infected hides from Tanganyika and other parts of East Africa.—J. H. Hale.

Delpy, L.-P. & Chamsy, H. M. (1951.) Immunisation des chevaux contre la fièvre charbonneuse et le tétanos, par vaccins associés. **[Simultaneous immunization of horses against anthrax and tetanus.]**—*Bull. Acad. vét. Fr.* **24.** 62-65. 9

In order to cut down the number of protective inoculations in large numbers of Army horses, the authors used a combined inoculum of anthrax spore vaccine and tetanus anatoxin. The material was injected through several intradermal punctures. The protection afforded was satisfactory.—I. W. Jennings.

Gillissen, G. & Lust, D. (1950.) Zur Differenzierung von Milzbrandbazillen und milzbrandähnlichen Sporenbildern und die Bedeutung ihres Vorkommens in Abwässern. **[Differentiation of *Bacillus anthracis* from other sporulating bacilli in tannery effluent.]**—*Zbl. Bakt. I. (Orig.)* **156.** 99-107. 10

Two spore-forming aerobes which were intermediate in their characters between anthrax bacilli and anthracoids were isolated from tannery effluent. Anthrax bacilli added to tannery effluent are stated to have become changed within 19 days—loss of virulence for mice, peripheral haemolysis on blood agar and atypical growth in broth.—E. G. White.

Mohan, R. (1950.) **Incidence of tuberculosis in goats.**—*Indian vet. J.* **27.** 153-157. 11

Of 1,602 carcasses of goats slaughtered for food 14 were infected. In tests of the milk of 332 goats of 20 herds, two contained tubercle bacilli.—N. S. Datt.

Urwitz, S. (1949.) **Tuberculous infection from dogs.**—*Acta tuberc. scand.* **23.** 211-219. [In English.] 12

During the previous ten years 52 dogs with TB. were examined P.M. at the Veterinary

College, Stockholm. Only a small percentage of tuberculous dogs react positively to the intracutaneous tuberculin test. The thermoreaction is more reliable. The best diagnostic method as in human beings is X-ray of the lungs.

Five cases of TB. in human beings are reported from a Hospital in Stockholm—all infected by one dog, which appears to have contracted the disease from an infected human being.—W. R. Bett.

Weissenrieder, F. X. (1950.) Grundsätzliches zur Frage der Bekämpfung und der Tilgung der Rindertuberkulose. Beobachtungen und Erfahrungen über das Ostertagsche Bekämpfungsverfahren im Kanton St. Gallen. **[Control of TB. in cattle.]**—*Schweiz. Arch. Tierheilk.* **92.** 509-528. [English, French and Italian summaries.] 13

Ostertag's method of eradication of TB. has failed in Germany and also in the canton of St. Gallen, Switzerland. The author agrees with Wagener that it is a waste of animals, money and time.—W. Steck.

Pérès, Ge. & Pérès, Ga. (1951.) Essais de B.C.G. diagnostic sur les bovidés. **[B.C.G. in the diagnosis of bovine TB.]**—*Bull. Acad. vét. Fr.* **24.** 70-72. 14

The authors state that B.C.G., living or heat-killed, injected intradermally, can be used to detect a state of allergy against tubercle bacilli in cattle. When this test and the ordinary tuberculin test were done simultaneously in the same animals the reactions agreed in 80–90% of cases.—A. Mayr-Harting.

Heaf, F. (1951.) **The multiple-puncture tuberculin test.**—*Lancet.* **261.** 151-153. 15

A single tuberculin test on human beings made with multiple-puncture apparatus is described. The simplicity of the test and the elimination of the personal factor may make it suitable for mass tuberculin surveys of large groups of population, particularly in undeveloped countries.

Wihman, G. (1950.) **A new concentration method for Koch's bacillus in sputum specimens.**—*Acta tuberc. scand.* **24.** 172-176. [In English.] 16

In this concentration method the tubercle bacilli resist enforced digestion by pancreatin + sterile ox-bile, *i.e.*, they retain their acid-fastness. W. has employed this technique as a routine since 1945 on 6,085 specimens with highly satisfactory results.—W. R. Bett.

Wadley, F. M. (1949.) **The use of biometric methods in comparison of acid-fast allergens.** —*Amer. Rev. Tuberc.* **60.** 131-139. [English and Spanish summaries. Abst. from English summary.] 17

The application of biometrical methods to the problem of comparison of allergens is discussed and examples are presented using results from cattle and also from g. pigs.

Thomas, J. C. & Mennie, A. T. (1950.) **Bacterial polysaccharides in the diagnosis of infections. The polysaccharide lysis test.**—*Lancet.* **259.** 745-746. 18

Diagnostic haemolytic tests using polysaccharide fractions from *Mycobacterium tuberculosis* and *Neisseria gonorrhoeae* adsorbed on to sheep erythrocytes were given limited trials with promising results.

—John Seamer.

Wang, V. F. L. & Meng, C. H. (1951.) **The use of Chinese hamsters (*Cricetulus griseus*) in the study of *Mycobacterium tuberculosis*. I. Comparison between the cultural method and animal inoculation for the primary isolation of tubercle bacilli.**—*Chin. med. J.* **69.** 80-85. [Abst. from authors' summary.] 19

By hamster inoculation 60% of positive sputa were detected as compared with 57% by cultural methods. The Chinese hamster appeared to be as sensitive as the g. pig to infection with tubercle bacilli.

Choucroun, N., Delaunay, A., Bazin, S. & Robineaux, R. (1951.) Influence exercée par la phagocytose de bacilles de Koch vivants ou tués, et par une fraction lipopolysaccharidique isolée de ces bacilles, sur les phénomènes de migration leucocytaire *in vitro*. **[Effect on leucocyte migration of phagocytosis of dead or living tubercle bacilli.]**—*Ann. Inst. Pasteur.* **80.** 619-626. 20

The ingestion by g. pig polymorphonuclear leucocytes, of tubercle bacilli, live or dead, virulent or avirulent, lessened or destroyed the chemotactic ability of those cells. Pseudopodial activity was not immediately lost, but it gradually decreased, while changes in the cytoplasm of the cell and its nucleus led more or less rapidly to its death. An antigenic lipopolysaccharide extracted from tubercle bacilli had the same inhibitory action on polymorphonuclear leucocytes as that of the live bacilli.—I. W. Jennings.

Catel, W. & Schmidt, W. (1950.) Klinische und experimentelle Untersuchungen über das Wesen der lokalen Tuberkulinempfindlichkeit. **[Clinical and experimental studies of**

the nature of local tuberculin sensitivity.]—*Dtsch. med. Wsch.* **75.** 1140-1145. 21

In order to determine which substance in the tubercle bacillus stimulates the formation in the body tissues of epithelioid cells (tuberculocytes), tuberculoprotein GT (Höchst), ["Gereinigtes Tuberkulin"—a purified tuberculin] mycolic acid (constituent of the wax layer of the tubercle bacillus), and phthioic acid (constituent of phosphatides of the bacillus) were injected intradermally into tuberculous children. Only tuberculoprotein G T was found to stimulate the production of epithelioid cells.

Rabbits, injected intravenously with living bovine type tubercle bacilli, gave a positive tuberculin reaction three weeks later. A fortnight later certain nerves were removed, and local tuberculin sensitivity in the denervated areas was found to be greatly diminished or non-existent. The nervous system plays an important role in the genesis and maintenance of allergy to the tubercle bacillus.

—W. R. Bett.

Long, D. A., Miles, A. A. & Perry, W. L. M. (1951.) **Influence of thyroxine on the desensitising action of A.C.T.H. and of cortisone in B.C.G.-infected guinea pigs.**—*Lancet.* **260.** 1392-1394. [Authors' summary copied *verbatim.*] 22

The response to intradermal tuberculin has been used as a measure of allergic hypersensitivity in albino guinea pigs injected wth B.C.G., and maintained on a diet supplemented by cabbage. Propylthiouracil, which alone has no effect on hypersensitivity, abolishes the desensitising action of A.C.T.H. and cortisone. A twenty-eight-day course of thyroxine, in a dosage sufficient to produce mild thyrotoxicosis, causes a significant increase in hypersensitivity. Both mildly thyrotoxic animals and non-thyrotoxic animals are desensitised to the same level by A.C.T.H. and cortisone; since thyrotoxic animals have initially the greater sensitivity, the extent of their desensitisation is greater; the reduction is at least ninefold. A twenty-eight-day course of thyroxine, in a dosage that does not produce any signs of thyrotoxicosis, has no effect on hypersensitivity but restores the desensitising action of A.C.T.H. or cortisone in guinea pigs treated with propylthiouracil. Thyroxine is necessary for the desensitising action of cortisone and A.C.T.H.

Bloch, R. G., Vennesland, K. & Gurney, C. (1951.) **The effect of cortisone on tuberculosis in the guinea pig.**—*J. Lab. clin. Med.* **38.** 133-147. [Authors' summary and conclusions amended.] 23

Prolonged administration of cortisone (5 mg. daily for twenty-four days) to tuberculous guinea pigs promoted the development of TB., especially during the early stages of the disease. Cortisone interfered with the therapeutic effect of streptomycin and inhibited specific hypersensitivity to about 50% during the period of injections. The hypersensitivity restored itself after the injections were discontinued. The blood sedimentation rate in untreated guinea pigs spontaneously returned to preinfection levels after an initial rise which roughly concurred with the beginning of hypersensitivity. This initial elevation was inhibited by cortisone as well as by streptomycin therapy. Eosinophile cells in the blood disappeared entirely in the majority of cortisone-treated guinea pigs. The enlargement of the adrenal gland which occurs under the stress of TB. in guinea pigs was inhibited by cortisone during the treatment period but recurred in animals which were permitted to survive the injections. On macroscopic examination the light part of the adrenal cortex appeared narrowed in animals killed immediately after cessation of treatment. Histologically these changes expressed themselves as a loosening and widening of the fat-containing zona fasciculata in TB., and as a tightening and narrowing under the influence of cortisone. These findings may be part of a normal cycle of changes, altered in its course by cortisone. The thyroid gland was significantly increased in weight in cortisone-treated tuberculous guinea pigs killed at the termination of treatment. It was normal in animals which were permitted to survive.

The daily dose of 5 mg. of cortisone was found to be the minimum effective dose for guinea pigs in a separate experiment in which various doses were employed.

Boehm, F. (1950.) **A study of the mechanism of healing of tuberculous processes of the intestine under chemotherapy.**—*Acta tuberc. scand.* **24.** 30-37. [In English.] 24

B. stated that TB. lesions of the intestinal mucosa healed quicker when TB1. 698 (acteylaminobenzaldehyde-thiosemicarbazone) treatment was given than when left untreated. Even extensive ulceration underwent clinical and histological healing.—W. R. Bett.

Finzi, G. (1951.) L'exotuberculine saturée allergique. **[Saturated allergic exotuberculin.]**—*C.R. Acad. Sci., Paris.* **232.** 125-126. 25

The production of exotuberculin by human

and bovine types of tubercle bacilli reaches a maximum during the sixth or eighth week of culture, then declines. If the organism is grown in 1000 ml. flasks containing Sauton medium at 38–38·5°C. for 6–8 weeks, and the surface layer is then broken up and allowed to fall to the bottom of the flask, a new culture may be grown on the same surface. In this way a more concentrated solution of what the author speaks of as saturated allergic exotuberculin may be obtained.—N. DEAN.

COTTEW, G. S. (1950.) **Melioidosis in sheep in Queensland. A description of the causal organism.**—*Aust. J. exp. Biol. med. Sci.* **28.** 677-683. [Author's summary modified.] 26

Pfeifferella whitmori has been isolated from fatal infections in sheep in Queensland. This is believed to be the first record of a natural occurrence of melioidosis in sheep, and is the first known isolation of the organism in Australia.

PAILLE, R. & HARS, E. (1950.) Hémagglutination et rouget du porc. **[Haemagglutination in swine erysipelas.]**—*Bull. Acad. vét. Fr.* **23.** 371-374. 27

Examination of 120 strains of *Erysipelothrix rhusiopathiae* for haemagglutination, and of the corresponding sera for inhibition of haemagglutination showed that equal degrees of inhibition and immunity were produced by all the sera, regardless of the agglutination titre of the strain used.—G. P. MARSHALL.

TERPSTRA, J. I. (1949.) Over varkenspest en vlekziekte. **[Swine fever and swine erysipelas.]**—*Tijdschr. Diergeneesk.* **74.** 342-347. 28

Predisposing non-specific factors play a role in the incidence of swine erysipelas. Following Doyle's observation that immunization with crystal violet vaccine against swine fever and subsequent challenge with virus may increase susceptibility to swine erysipelas, T. vaccinated pigs with that vaccine and three months later inoculated them with *E. rhusiopathiae* (subcutaneously or intravenously) together with controls. After three days all the vaccinated pigs developed "diamond" skin lesions while the unvaccinated controls resisted infection. T. used this reaction as a test of simultaneous serum culture vaccination. Pigs vaccinated some months before with swine fever vaccine were inoculated simultaneously with 0·5 ml. *E. rhusiopathiae* culture and 15 ml. serum, other swine fever vaccinated pigs being kept as controls. After a month all of them were infected with living culture. The first group resisted infection; the controls developed swine erysipelas.

Allergic factors appear to play a role in spontaneous infection. Six pigs received 5–13 ml. of *E. rhusiopathiae* culture subcutaneously and two weeks later were given 10 ml. serum intravenously and on the following day 10 ml. *E. rhusiopathiae* culture intravenously. All of them contracted swine erysipelas. Controls that received only 10 ml. immune serum or 10 ml. normal serum before the culture infection remained healthy.—C. A. VAN DORSSEN.

PETERSON, E. H. & HYMAS, T. A. (1950.) **Diamond skin disease (chronic erysipelas) in a turkey.**—*J. Amer. vet. med. Ass.* **117.** 465-466. 29

Erysipelothrix rhusiopathiae was isolated from lesions of a male turkey with a chronic eye condition, pox like lesions on the unfeathered parts of the skin and necrotic lesions on the feet.—D. LUKE.

DEMNITZ, A. & SCHNEIDER, B. (1950.) Spielt beim Auftreten der Wild- und Rinderseuche ein filtrierbares Virus eine Rolle? **[The role of a filtrable virus in the aetiology of bovine pasteurellosis.]**—*Mh. prakt. Tierheilk.* **2.** 268-273. 30

Two cattle injected intravenously with a culture of *Pasteurella* isolated from a case of haemorrhagic septicaemia (Wild- und Rinderseuche) and also given a filtrate of the infected lung material intrapulmonarily failed to develop the typical lesions of the natural disease, a fibrinous pleurisy being the only lesion at autopsy. A third animal, given an intravenous injection of filtrate from a normal bovine lung and also injected intrapulmonarily with filtrate from the naturally infected lung, remained healthy. There was therefore no evidence that a filtrable virus was concerned. Intravenous inoculation of *Past. boviseptica* did not produce the characteristic lesion of the natural disease and other factors, particularly related to hygiene, are probably concerned in its development.—E. G. WHITE.

NARAYAN, N. S. S. & BANERJI, T. P. (1949.) **A note on a variant of *Pasteurella aviseptica*.**—*Indian J. vet. Sci.* **19.** 225-228. 31

A strain of *Past. aviseptica* isolated from an outbreak in ducks was pathogenic only for rabbits and not for ducks or fowls.

—M. M. SINGH.

ALBERTS, J. O. (1950.) **The prophylactic and therapeutic properties of sulfamerazine in fowl cholera.**—*Amer. J. vet. Res.* **11.** 414-420. 32

Sodium sulphamerazine at a dose rate of

143 or 107·25 mg. per kg. body weight given orally to turkeys and fowls inoculated with *Pasteurella multocida* produced reduction in mortality and partial immunity to re-infection. —R. D. CARTY.

GOLDSBY, A. I. & EVELETH, D. F. (1950.) **Pseudomoniasis—a disease of poultry.**—*Bull. N. Dak. agric. Exp. Sta.* **13.** 59-61. 33

During poultry diagnosis work the authors have frequently isolated a *Pseudomonas* sp. in cases of generalized oedema. Experimental infection could be controlled by streptomycin-penicillin implants.—D. LUKE.

ROBERTS, R. S. (1949.) **The endotoxin of** *Bact. coli.*—*J. comp. Path.* **59.** 284-304. 34

Bact. coli endotoxin, a polysaccharide, was obtained by heating the bacteria for one hour at 80°C. The toxin had many properties in common with those produced by *Salmonella* and dysentery organisms. On a weight basis, g. pigs receiving the toxin subcutaneously were 17·5 times more susceptible than mice injected intravenously. The gross appearance of lesions suggested capillary haemorrhage, but as no evidence of increased capillary permeability could be obtained, it was considered that the lesions were caused by terminal hypertension. When injected into calves the endotoxin was capable of inducing antibody formation. Until the endotoxin can be prepared in a non-toxic form there is no obvious advantage in using it instead of bacterial suspensions as an antigen. —E. EDEN.

RAGGI, L. (1948.) Istopatologia del cuore, dell'encefalo, del fegato e dei reni in un caso di endocardite da *Esch. coli* nel suino. **[Histopathology of the heart, brain, liver and kidneys in a case of endocarditis caused by** *Bact. coli* **in a pig.]**—*Zooprofilassi.* **3.** No. 10. pp. 1-9. 35

The histological examination of the heart, brain, liver and kidneys of a two-month old pig with endocarditis caused by *Bact. coli* infection revealed the following lesions: endocarditis, chronic myocarditis, leptomeningitis, purulent encephalitis, toxic hepatitis and chronic interstitial nephritis.—J. K. GAN.

FELSENFELD, O., GONZÁLEZ, L. M. & YOUNG, V. M. (1948.) **Salmonellae in domestic animals in Puerto Rico.**—*Proc. 4th Internat. Congr. Trop. Med. Malar.* pp. 1413-1415. 36

From over a thousand specimens from human and animal sources examined in Porto Rico, 86 strains of salmonella were isolated, *S. typhi-murium* being the most frequent type, particularly in animals. In rats there was a carrier rate for all salmonella species of over 50%. Pigs also were often infected. *S. paratyphi B* was found twice in pigs. *S. panama,* although frequent in American fowls and pigs, was not found. The incidence of salmonella contamination in meat samples was high, but clinical salmonellosis was found to be infrequent, probably owing to local habits of food preparation.—A. MAYR-HARTING.

WATT, J. & DECAPITO, T. (1950.) **The frequency and distribution of** *Salmonella* **types isolated from man and animals in Hidalgo County, Texas.**—*Amer. J. Hyg.* **51.** 343-352. 37

The distribution of *Salmonella* types in human beings and in the domestic animals owned by them was studied over a period of two years. In monthly rectal swabs from about 1,300 children salmonella were present on 234 occasions, and from rectal or cloacal swabs from the various animals and birds living in the vicinity of an infected human being on 153 occasions. Of the 44 types of salmonella encountered, 30 were from man and 35 from various animals, as follows: fowls, 21 types; dogs, 19; cats, 13; ducks, 8; turkeys, 2; pigeons, 2; goat, cow and armadillo, 1 each. Dogs had the highest rate of any species, with cats a close second.

In tests on other animals and birds 400 rabbits were all negative. The similarity of the distribution of types of salmonella in man and animals was striking; the only clear-cut species preference was in the case of *S. pullorum,* which was obtained exclusively from fowls and was the only salmonella found in any quantity which was isolated from a single species. The first isolations of 11 new types of salmonella were made during the course of the work, these new types representing 25% of the total types encountered. Infections with the new types were, however, rare, accounting for only about 6% of the total positive cultures. *S. javiana* was the most frequently encountered organism, closely followed by *S. oranienburg.*

Flies did not appear to play an important role in the distribution of the organisms. Within a one-block radius of a town in which a human being was infected the same salmonella type was present in animals in more than 50% of cases. There were many foci of infection in which multiple isolations were made in a single city block, and were the only isolations of the particular salmonella type in the town.

—CLIVE BRIGGS.

HEEMSTRA, L. C. (1950.) **Comparative testing for pullorum disease.**—*Rep. Nat. Plans Conf. U.S. Dep. Agric. Bur. Anim. Industr., Chicago, June* 13-16. pp. 47-66. 38

In the course of a survey in which tests were made on 28,000 fowls, using *S. pullorum* standard antigen and one prepared from a variant, an attempt was made to evaluate the importance of the problem of the variant organism. Four hundred and twenty-four birds reacted and of these 64 reacted to the variant antigen, *i.e.*, only about two birds per thousand.—D. LUKE.

COOK, G. T., FRISBY, B. R. & JEBB, W. H. H. (1951.) **The routine use of selective and enrichment media for the isolation of salmonellae.**—*Mon. Bull. Min. Hlth publ. Hlth Lab. Serv.* **10.** 89-95. 39

A comparison of deoxycholate-citrate agar, solid Wilson and Blair's medium, tetrathionate broth and selenite-F broth for the isolation of salmonella organisms was made on 539 positive specimens of faeces. For salmonella as a whole deoxycholate-citrate agar was superior to Wilson and Blair's medium but the latter was better for *S. typhi*. Indirect plating was better than direct plating. Selenite broth was better than tetrathionate broth as an enrichment medium. Plating from selenite broth to deoxycholate-citrate agar was the most successful method. The larger the number of selective and enrichment media used the greater is the chance of isolating salmonella organisms from faeces.

—E. G. WHITE.

FELIX, A. & CALLOW, B. R. (1951.) **Paratyphoid-B Vi-phage typing.**—*Lancet*, **261.** 10-14. [Authors' summary copied *verbatim*.] 40

An extended typing scheme of *Salmonella paratyphi B* is described, comprising ten Vi-phage types and subtypes. During the nine years 1942-50 nearly 90% of strains isolated in all parts of Britain could be typed by the Vi-phage technique. By cross-neutralisation tests the available ten Vi-type phages were found to fall into three different serological groups, instead of into one group as was to be expected. The reason for this irregularity has not so far been elucidated.

Paratyphoid-B strains belonging to each of the ten recognised Vi-phage types are lysogenic. There is an intimate association between the Vi-phage type of a given strain and the presence or absence of certain "natural" phages. Some of the "natural" phages are identical with certain "adapted" Vi-type phages; others have different antigenic and lytic properties. The constancy and epidemiological significance of paratyphoid-B Vi-phage types are of a high order. "Degradation" of cultures, leading to loss of type specificity, is not as common with *S. paratyphi B* as it is with *S. typhi*.

The principles of the phage-typing technique and the rules to be followed in the future extension of the typing scheme are discussed.

I. FERGUSON, L. C., IRWIN, M. R. & BEACH, B. A. (1945.) **Variations in the blood picture of cattle following an induced infection with *Brucella abortus*.**—*J. infect. Dis.* **76.** 31-39. 41

II. FERGUSON, L. C., IRWIN, M. R. & BEACH, B. A. (1945.) **On variation in the blood cells of healthy cattle.**—*Ibid.* 24-30. [Authors' summaries slightly modified.] 42

I. Changes in the number of red and white blood cells and in the proportions of the different types of leucocytes were noted in the same animals, before and following artificial infection with *Br. abortus*. The following significant effects were presumably produced by the infection:

The total number of erythrocytes and leucocytes per cu. mm. decreased following the infection. Of the different types of leucocytes, the mean percentage of polymorphonuclear cells, monocytes and basophiles increased, while that of the lymphocytes and eosinophiles decreased after the infection.

The animals were classified as to whether they were resistant or susceptible to infection with *Br. abortus*, and the observations on these groups in the pre-infection and post-infection periods are given separately. A comparison of the pre-infection "resistants" and "susceptibles", and the post-infection "resistants" with the "susceptibles" reveals the following differences:

(1) The mean total number of red blood cells per cu. mm. was higher in the susceptible than in the resistant animals in the pre-infection period. (The erythrocyte counts were not continued throughout the post-infection period.) (2) The susceptible animals had a significantly higher average number of leucocytes per cu mm. both preceding and following infection. (3) Of the different types of leucocytes, the percentages of polymorphonuclears and monocytes were slightly higher in the resistant animals, in both the pre-infection and post-infection periods. The proportions of lymphocytes and eosinophiles were greater in the susceptible animals, both before and after infection with *Br. abortus*.

The observations in the post-infection period were further divided into (a) those made

before, and (b) those made following calving or abortion. The average number of leucocytes increased in the post-parturient period over that observed before parturition and the mean percentage of monocytes likewise was slightly higher after parturition than before. The other types of cells showed no statistically significant changes prior to and after calving or abortion.

II. Observations were made on the blood picture of 19 cows at weekly intervals over a period of about 2½ years, and on that of 6 others for a lesser period of time. The means or averages of the various cellular constituents, and their respective standard errors are as follows: red blood cells, 6,322,910 ± 17·78 per cu. mm.; white blood cells, 8,911·52 ± 42·37 per cu. mm.; polymorphonuclears, 34·73 ± 0·07%; monocytes, 7·94 ± 0·07%; lymphocytes, 41·24 ± 0·16%; eosinophiles, 14·87 ± 0·14%; and basophiles, 0·62 ± 0·02%. The considerable fluctuation in the data is indicated by the relatively large standard deviations of each of the classes.

A statistical analysis of the data, using the methods of analysis of variance, showed that there was much more variation in the blood picture between animals than in the weekly counts in individual animals. The average cellular values for each of the 25 animals are given, and significant differences exist in one or more classes between certain of them.

It is proposed that each animal of the species probably has a blood picture in health peculiar to itself, just as each has its own size, form, etc.

FERGUSON, L. C., IRWIN, M. R. & BEACH, B. A. (1948.) **Interrelationships of the blood cells of cattle in health and following an induced infection with** *Brucella abortus*.—*J. infect. Dis.* **82.** 101-108. 43

This paper is a statistical analysis of the findings recorded by the same authors in 1945.

The blood picture in 25 cattle was determined weekly for about two years before an induced exposure to *Br. abortus* and in 21 of the same animals following exposure. The data were statistically analysed in order to determine whether there were any constant relationships in the variations of the blood cells. The results of the analysis are given in a table.

—J. A. J. VENN.

LEMBKE, A., KÖRNLEIN, M. & FRAHM, H. (1950.) Beiträge zum Brucellose-Problem. II. Mitteilung. Untersuchungen über das Verhalten von Blut- und Milchtiterwerten im Grosstierbestand. [**Brucellosis. II. Blood and milk titres.**]—*Zbl. Bakt. I. Orig.* **155.** 96-108. 44

The authors evaluated statistically the results of the serological examination of blood and milk of cows for brucella agglutinins. They discussed in detail the statistical methods employed and demonstrated the advantages of these methods for the interpretation and presentation of serological work. They found that the correlation coefficient of milk and blood titres was + 0·4, this being significant but not high enough to prove that the milk agglutinins come from the serum and are filtered off at an even rate by passing through the tissues. It must be concluded either that the milk agglutinins arise in the udder or else, if they arise in the serum, they are filtered off very irregularly on their way into the milk. It is impossible to draw conclusions from the blood titre as to the milk titre or *vice versa*, even though their correlation is not only accidental. A slightly positive correlation was found also between brucella and Gärtner agglutinins; vaccination with *Br. abortus* vaccine caused also a slight rise in titre of the Gaertner agglutinins.

—A. MAYR-HARTING.

ROSSI, P. (1951.) L'adénoculture dans la brucellose bovine. [**Lymph node cultures in diagnosis of bovine brucellosis.**]—*Bull. Soc. Path. exot.* **44.** 289-292. 45

R. found that culture of aspirated lymph node material was not a practicable method of routine diagnosis in cattle.

—G. P. MARSHALL.

VAN DRIMMELEN, G. C. (1951.) **The diagnosis of brucellosis by means of the Brucella ring test.**—*Fmg. S. Afr.* **26.** 171. 46

A general note; the test antigen is distributed by the Onderstepoort laboratory.

—C. C. BANNATYNE.

PARNAS, J. & STEPKOWSKI, S. (1950.) Studia nad brucelozą. Działanie streptomycyny i sulfadiazyny w przebiegu brucelozy. [**The action of streptomycin and sulphadiazine on the course of brucellosis.**]—*Ann. Univ. M. Curie-Skłod.* Sect. DD. **5.** 439-454. [English & Russian summaries.] 47

G. pigs infected with *Brucella abortus* were treated simultaneously with streptomycin and sulphadiazine. Their reactions to the agglutination, complement fixation and precipitation tests receded, but the skin test was not affected.—C. C. BANNATYNE.

BONILLA SOTO, O. & MORALES OTERO, P. (1949.) **Action of a parasitic amoeba and the**

antibiotic of a micrococcus on Brucella cultures.—*Puerto Rico J. publ. Hlth.* **24.** 305-319. [Spanish version 320-336.] [Abst. from abst. in *Bull. Hyg., Lond.* **24.** 907. (1949).] **48**

An amoeba parasitic upon bacterial cultures was isolated during the routine testing of *Salmonella typhi* by bacteriophage, and was found to cause the lysis of most of the strains of *Br. abortus* while the greater number of the strains of *Br. suis* were resistant; the *Br. melitensis* group contained both resistant and susceptible strains.

A micrococcus was also isolated which had an inhibitory effect, and all of the strains of *Brucella* which were susceptible to the action of the amoeba were inhibited by a "critical" dilution of the supernatant of a culture of the micrococcus. There was thus some degree of correlation between these two agents. As *Br. suis* and *Br. abortus*, with few exceptions, reacted differently it is suggested that this may prove of value in their differentiation. Further study is of course necessary for it to be accepted as of epidemiological significance.

Limited data given of the variability of the different strains of *Brucella* to penicillin suggest that this fact may explain the conflicting reports on the treatment of brucellosis with antibiotics.

Golem, S. B. (1949.) Brusellozun Memleketimizdeki Durumu. **[Situation of brucellosis in Turkey.]**—*Türk Ijiyen ve Tecrübi Biyoloji Dergisi.* **9.** 33-86. [French translation.] **49**

In this report a large section is devoted to brucellosis in man and one to the disease in animals. Since the first human case of brucellosis was diagnosed in 1915, many others have been found, *e.g.* in 1943 and 1947, 33 and 59 cases respectively were diagnosed in Smyrna. The disease is undoubtedly widespread in Turkey and has so far been detected in 43 provinces, those in which the health services are comparatively well developed. In six other provinces the disease has been declared in animals only. Of 3,511 samples of human serum examined, 278 were serologically positive. G. examined sera from 157 abattoir workers in Ankara and found three positive reactors. Milk is ordinarily used only after being boiled, so the main source in towns is likely to be fresh milk products, cream cheese and butter. Most of the ewes' milk is converted into yoghurt, country butter and cheese and may therefore be expected to be harmless. Hence cases in country workers mostly arise from direct contact with infected animals.

Of 22 strains isolated from man, 21 were *Br. melitensis* and one, *Br. abortus*. Of 8,011 samples of cattle serum, mostly from government farms, 18% were positive. Of 16 brucella strains from cattle, 11 were *Br. melitensis* and 5 *Br. abortus*, and both types have been found on the same farm. *Br. melitensis* infections are considered to be indigenous, while those due to *Br. abortus* are regarded as imported. In solipeds, infection apparently arises from direct contact with cattle. Three strains from sheep and one from a goat were *Br. melitensis*.—S. Onuk.

Sutherland, A. K. (1950.) **Some veterinary aspects of the prevention of brucellosis.**—*Med. J. Aust.* Nov. 11th. 715-717. **50**

The relative importance of *Br. abortus* and *Br. suis* infections in human beings and some aspects of diagnosis and eradication of bovine brucellosis in Australia are discussed. The distribution of brucellosis of pigs in Australia is described. Reaction to the agglutination test is transient and as *Br. suis* is constantly excreted in the urine, all contacts of positive pigs should be slaughtered.

—C. C. Bannatyne.

Renoux, G. & Quatrefages, H. (1951.) L'identification des *Brucella* par leur activité ureasique comparaison avec les autres méthodes de différenciation. **[Identification of *Brucella*.]**—*Ann. Inst. Pasteur.* **80.** 182-188. **51**

The authors re-examined the urease test as a method for classification within the genus *Brucella*. *Br. suis* and *Br. melitensis* hydrolyse urea very quickly, *Br. abortus* much more slowly. The differences between strains of the same type, but from different parts of the world are, however, great. This test does not replace others for the differentiation of brucella, but should be used in conjunction with them.

—A. Mayr-Harting.

Cameron, H. S. (1951.) **The bactericidal action *in vivo* of aureomycin in an aureomycin fermentation residue against *Brucella suis*.**—*Cornell Vet.* **41.** 110-114. [Authors' summary slightly modified.] **52**

An aureomycin fermentation residue containing 100 g. of added aureomycin per 5 lb. of residue and 2·28 μg. of vitamin B_{12} per g. of residue was fed to a group of 14 pigs experimentally infected with *Brucella suis*. Ten similarly infected pigs were used as untreated controls. Treatment was continued for 28 consecutive days, at the end of which period the pigs were autopsied and the organs cultured and inoculated into g. pigs. Only one of the

treated group was infected at autopsy. Of the untreated controls, only two were negative at that time. The results suggest that aureomycin at the foregoing level was bactericidal for *Br. suis in vivo*.

PREVITERA, A. & AGRIMI, P. (1949.) Studi su di un micete ad azione antibiotica azione del filtrato culturale grezzo sulla brucellosi degli ovini. **[Antibiotic action of a crude culture filtrate of *Penicillium notatum* against ovine brucella infection.]**—*Zooprofilassi.* **4.** 327-341. [Abst. from English summary.] **53**

Using a crude filtrate of *Penicillium notatum* the authors treated 16 sheep and 13 goats, all reactors to brucellin and to the agglutination test.

It is stated that 28% of the animals became non-reactors to the brucellin and 70% non-reactors to the agglutination test after treatment; also that after the remaining reactors were given a further treatment they also became negative reactors.

CARRÈRE, L. & QUATREFAGES, H. (1951.) Vaccination du cobaye contre l'infection à *Br. melitensis* par l'association des anacultures de Brucella et de la souche *Br. abortus* 112. **[Immunization of g. pigs with *Brucella melitensis* anacultures and strain 112 of *Br. abortus*.]**—*C.R. Acad. Sci., Paris.* **232.** 274-275. **54**

Injection of anacultures of a highly virulent strain of *Br. melitensis*, together with a suspension of living organisms of Strain 112 of *Br. abortus* conferred immunity on g. pigs against very severe experimental infection with *Br. melitensis*.—G. P. MARSHALL.

EICKE, W. (1950.) Über Serienuntersuchungen auf Tularämie an 4420 Ratten. **[Serial examination of 4,420 rats for tularaemia.]**—*Zbl. Bakt. I. (Orig.)* **156.** 85-87. **55**

4,420 rats, trapped in Berlin, were examined P.M. for tularaemia and their heart-blood was plated out on cystine-blood-agar. When any suspicion of infection was found at P.M. examination a g. pig inoculation was carried out in addition to culture. No positive results were obtained. In another series more than 600 sera, sent in for the Wassermann test, were examined for agglutinins against *Br. tularensis* also with negative results.

—A. MAYR-HARTING.

LINDSAY, W. R. N. & SCOTT, J. W. (1951.) **Oculoglandular tularemia transmitted from contaminated sewer water.**—*Canad. J. publ. Hlth.* **42.** 146-151. [Abst. from authors' summary.] **56**

The essential features of oculoglandular tularemia in man are outlined and an account is given of the first reported case in America from water transmission and the first instance of human infection from contaminated water in the Great Plains area of Canada.

VERGE, J. & GORET, P. (1951.) Les leptospiroses équines. **[Leptospira infection in horses.]**—*Rev. Méd. vét., Lyon et Toulouse.* **102.** 193-196. **57**

A short discussion of recent publications from the U.S.A., the U.S.S.R. and Czechoslovakia on leptospira infection in the horse.

—E. G. WHITE.

WELLINGTON, N. A. M., STEVENSON, W. J. & FERRIS, A. A. (1951.) **Endemic leptospirosis in Victoria.**—*Med. J. Aust.* July 7th. 15-18. [Authors' summary slightly modified.] **58**

Leptospirosis exists in Victoria as a disease of cattle and in certain occupational groups in man, namely, the dairying industry and the meat trade. Such infections have been caused by *Leptospira pomona*. An important reservoir of *L. pomona* infection exists in pigs, and there is serological evidence that Victorian pigs are also carriers of *L. mitis*.

SAVINO, E. & RENNELLA, E. (1948.) Depositos animales de leptospirosis humana. **[Animal reservoirs of human leptospirosis.]**—*Proc. 4th Internat. Congr. Trop. Med. Malar.* pp. 328-336. [In Spanish.] **59**

A survey of the literature, up to and including 1947, dealing with the distribution of the 15 species of *Leptospira* in animals comprising species of five orders of mammals (excluding man).

Two tables summarise the distribution, as well as the geographical locations, of the species concerned and the relative frequency with which animals belonging to the five orders have been found to be infected.

A third table provisionally lists the primary and secondary animal reservoirs for each species of *Leptospira*, as far as they were known at the time.—G. P. MARSHALL.

LYUBASHENKO, S. Y. (1949.) **[Vaccine and serum prophylaxis and serum therapy in leptospirosis.]**—*Veterinariya, Moscow.* **26.** No. 7. pp. 6-9. **60**

L. isolated in culture a leptospira organism from horses which he named *L. icteroanaemia*. Except that it is serologically related to *L. grippo-typhosa* its character is not described. Six horses and four calves were inoculated with this organism and it is stated that between 1940-48 the serum obtained conferred solid protection on 96 horses, 327 cattle,

265 sheep and goats and 12,408 foxes. Of 1,418 controls used in the course of dosing these animals, 194 developed the disease. Of 896 animals with naturally acquired leptospira infection and given this serum, 807 recovered.

During the same period L. also prepared a vaccine from this organism. In tests, all except seven out of 51,468 foxes had acquired immunity, but out of 1,328 non-vaccinated controls 173 fell ill. Of 5,483 cattle, one calf became infected and died; 21 out of 90 controls fell ill but all recovered on being treated with the serum. None of 386 horses, 1,268 sheep and goats and 1,478 pigs that had been vaccinated were affected.

The use of antiserum combined with the above vaccine has been officially adopted in the U.S.S.R. and by 1949 over 300,000 animals had been inoculated without a single known case of infection following. On fur farms leptospirosis has been entirely eliminated. L. cautions, however, not to rely unduly on vaccines.—F.A.A.

PIERCY, S. E. (1951.) **A comparison of blackquarter vaccines.**—*Brit. vet. J.* **107.** 63-75. [Author's summary slightly modified.] 61

Experiments designed to compare the efficacy of muscle, whole-culture and alum-precipitated blackleg vaccines are described. All three vaccines conferred a satisfactory immunity in sheep tested over periods varying from 16 days to 7 months. Culture vaccines are preferable and, of these, vaccines containing alum are to be preferred.

The experiments indicate that with vaccines of high immunizing value, doses lower than the standard commonly adopted (5·0 ml.) may be equally effective. This requires further investigation. The importance of standardized challenge doses is discussed and it is suggested that vaccines which will protect against 20 M.L.D. will prove adequate under field conditions. A waning of immunity over a period of ten months is noted.

JANSEN, J. & KUNST, H. (1951.) **Cultivation of *Vibrio foetus*.** [Correspondence.]—*Nature, Lond.* **167.** 564. 62

Vibrio fetus can be cultivated in the developing chick embryo. A rich growth is present in the allantoic fluid three days after inoculation of seven to nine days incubated eggs.

—L. M. JONES.

JANSEN, J. (1949.) Het rotkreupel der schapen. **[Contagious foot rot of sheep.]**—*Tijdschr. Diergeneesk.* **74.** 244-253. 63

A survey of literature.

—C. A. VAN DORSSEN.

JANSEN, J. & VAN DEN BERG, H. A. (1949.) Formalinebehandeling van het rotkreupel bij schapen. **[Formalin therapy in contagious foot rot in sheep.]**—*Tijdschr. Diergeneesk.* **74.** 510-516. 64

In 11 severe spontaneous cases the feet of the sheep were treated surgically every week and dipped every second day in a 10% aqueous solution of formaldehyde. During the three months of treatment the animals were kept in clean stables. All recovered without relapse.

—C. A. VAN DORSSEN.

KIPKIE, G. F. & HOWELL, A. (1951.) **Histopathology of experimental histoplasmosis.**—*Arch. Path.* **51.** 312-318. [Authors' summary slightly modified.] 65

Histological studies were performed on 491 dba line 1, BHC57B10 and BHC57B6 male and female mice following intracerebral, intravenous and intraperitoneal injection of various strains of *Histoplasma capsulatum*. The intraperitoneal injection group was divided into one in which the organisms were suspended in saline solution and a second in which they were suspended in mucin. The lesions produced were regularly and typically granulomatous. The Goldman iron alum-picric acid-hematoxylin stain is especially useful for demonstrating these parasites in the tissues.

CAMPBELL, C. C. & SASLAW, S. (1951.) **Atabrine therapy of *Histoplasma* [*capsulatum*] infections in mice.**—*Publ Hlth Rep., Wash.* **66.** 570-577. 66

In vitro, atebrin at concentrations of 0·15 mg. per ml. inhibited the growth of *H. capsulatum*. In experimentally infected mice, the survival rate was increased from 26·1% to 58·9% by intraperitoneal injection of 0·6 mg. atebrin daily for 30 days, and from 33·3% to 71·9% when the daily dose was 0·75 mg.; the organism could, however, be isolated from the spleen after treatment.—NESTA DEAN.

SCHWARTZ, L., PECK, S. M., BOTVINICK, E. LEIBOVITZ, A. L. & FRASIER, E. S. (1946.) **Control of ringworm of the scalp among school children.**—*J. Amer. med. Ass.* **132.** 58-61. 67

An account of the control of ringworm in boys. The chief means of spread was traced to the barbers' clippers. To prevent the spread in this manner, the authors advised that the barbers' sterilized clippers should be immersed in petroleum oil (b.p. 150–200°C.) kept at 100°C., the clippers to be worked for 10 sec. while in the oil; alternatively, they might be boiled in 2% saponified cresol or be immersed

in 10% strength at room temperature for 15 min. Other factors concerning the avoidance of spread from child to child were discussed. The most useful remedies were found to be 5% salicylanilide ointment or copper undecylenate ointment.—J. H. HALE.

LALL, H. K. & RAJAGOPALAN, V. R. (1949.) **Actinomycotic dermatitis in cross Merino lambs.**—*Indian J. vet. Sci.* **19.** 1-4. 68

The authors described a form of dermatitis in very young cross-bred Merino lambs in India. Mortality in Hissar-dale (Bikaneri × Merino) and Lohi breed lambs was about 25% and 5% respectively, whereas pure-bred Bikaneri lambs were unaffected.

The skin of the back and neck was mostly involved and became thickened and hard. There was no pruritus. The course of the disease varied from 4–15 days. A Gram-positive rod-shaped branching mycelium was present in sections of the affected skin. The organism could not be cultivated.—M. K. SREENIVASAN.

GEISTER, R. S. & MEYER, E. (1951.) **The effect of aureomycin and penicillin on experimental actinomycosis infections in mice.**—*J. Lab. clin. Med.* **38.** 101-111. [Authors' summary copied *verbatim*.] 69

Standardization of the minimum infective dose for 100 per cent of the animals was accomplished using two strains of *Actinomyces bovis*. The expected dissemination and progression of the disease process in mice was outlined.

A method was devised to evaluate the extent of infection and the efficiency of therapeutic agents in the treatment of this disease. The prophylactic and therapeutic effectiveness of aureomycin and penicillin against actinomycosis of mice was demonstrated.

LARRAT, R. (1949.) Observations sur l'emploi du vaccin de culture anti-péripneumonique en milieu sain et contaminé. [**Vaccine against bovine contagious pleuro-pneumonia in uninfected and in contaminated surroundings.**] —*Rev. Élev. Méd. vét. Pays trop.* **3.** 47-50. 70

Vaccination before exposure to infection with bovine contagious pleuro-pneumonia conferred, at best, 103 days' protection, while vaccination after exposure did not delay either the incidence or the course of the disease.

—G. P. MARSHALL.

SHIRLAW, J. F. (1949.) **Studies on contagious pleuropneumonia of the goat in India.**—*Indian J. vet. Sci.* **19.** 181-213. 71

A general account of the disease. S. confirmed Longley's work as to the causative organism. An account was given of immunization trials carried out.—M. R. DHANDA.

See also absts. **127-128** (infection of *B. coli* with labelled bacteriophage); **178** (joint WHO/FAO report); **212** (intestinal flora); **224** (ruminal bacteria); **238** (coliform bacteria in milk); **242** (coliform bacteria in mutton); **256** (sterility caused by bacteria); **257-258** (*V. fetus*); **285** (report, Gt. Britain); **286-287** (reports, India); **288** (report, Kenya); **290** (report, Basutoland); **291** (report, Uganda Protectorate).

DISEASES CAUSED BY PROTOZOAN PARASITES

SINGH, S. (1950.) **A note on bovine trypanosomiasis in military farms and its control by 'antrypol'.**—*Indian vet. J.* **27.** 74-77. 72

S. found 'antrypol'' [suramin] efficacious as a curative and prophylactic. Since the drug combines with the α-globulin of the blood its slow excretion and prolonged action are ensured. A slight fall in the milk yield, which in the majority of cases returned to normal within 14 days of treatment, was noticed in a few treated animals. To detect latent carriers, routine examination of fresh blood smears from apparently healthy animals was found of great value. Ponies and mules accommodated in close proximity to infected cattle did not contract the disease.—H. S. DHILLON.

KRANEVELD, F. C. & DJAENOEDIN, R. (1949.) Enige proeven over de mogelijkheid van herstel van in het tweede stadium van surra verkerende paarden door behandeling met naganol en arsocoll. [**Naganol (suramin) and arsocoll treatment of horses infected with** *Trypanosoma evansi*.]—*Hemera Zoa.* **56.** 213-222. [English and French summaries.] 73

Three horses were infected with *T. evansi* 0·5 ml. of highly positive blood being injected into the cerebrospinal fluid. A control was given no treatment; it died after nine days. The second horse was given 3 g. suramin intravenously and 3 g. ''arsocoll'' [cf tryparsamide] subcutaneously immediately after infection. This horse became chronically ill while the trypanosomes remained in the cerebrospinal fluid, the first symptoms appearing after 63 days; it died on the 64th day. The third horse given similar treatment five days after infection, when the blood was slightly positive, recovered. The efficacy of the treatment appeared to depend upon the diffusibility of the drugs particularly of drugs like tryparsamide which allowed the passage of detectable amounts of arsenic into the cerebrospinal fluid.—E.M.J.

MANJREKAR, S. L. (1950.) **Trypanosomiasis in goats—a preliminary note.**—*Indian vet. J.* **27.** 103-104. 74

M. has recorded for the first time natural infection of trypanosomiasis in goats in marshy villages of Bombay State. Symptoms observed were gradual emaciation, wasting and death within 4–6 weeks. A few goats, however, died suddenly within 4–8 hours. Microscopic examination of blood revealed numerous *T. evansi*. During routine examination of malaria carrying mosquitoes (*Anopheles culicifacies*) in that area, a trypanosome which was named *T. kalwanensis* [reference not quoted] was detected in the salivary glands. It is stated that goats are ordinarily refractory to infection with *T. evansi* under experimental conditions. Nothing is yet known about the vector problem, and the relationship, if any, between *T. evansi* and *T. kalwanensis*.—G. A. SHIVNANI.

CULWICK, A. T., FAIRBAIRN, H. & CULWICK, R. E. (1951.) **The genetic relationship of the polymorphic trypanosomes and its practical implications.**—*Ann. trop. Med. Parasit.* **45.** 11-29. [Authors' summary copied *verbatim*.] 75

Rats inoculated with mixtures of a strain of *Trypanosoma rhodesiense* and a strain of *T. brucei* developed infections in which the trypanosomes were morphologically distinct from the parent strains when judged by the length frequency-distributions of the three blood forms.

The mixed strains were transmissible by *Glossina morsitans*, the metacyclic trypanosomes differing in mean length from those of the parent strains. Cyclical transmission did nothing to restore the original morphology.

The mixture of *T. rhodesiense* and *T. brucei in vitro* produced similar morphological results, showing that the changes in the above experiments were caused by the mixing of the trypanosomes and not by any action of the host.

Hybridization, as an explanation of these phenomena, is considered and treated mathematically. It is concluded that, if this is the mechanism responsible, then the possibility exists that, by mixing *T. rhodesiense* and *T. brucei*, strains may be bred which are non-infective to man.

Experiments are described in which this is done, and it is shown that the non-infectivity to man of these mixed strains cannot be due to the *T. brucei* 'overgrowing' the *T. rhodesiense*.

Similar experiments with mixtures of *T. gambiense* and *T. brucei* are described. They yield very similar results, except that *T. brucei* takes longer to inhibit the infectivity to man of *T. gambiense* than it does in the case of *T. rhodesiense*.

Finally, mixtures of *T. gambiense* and *T. rhodesiense* are described. These again are morphologically distinct from the parent strains and readily transmissible by *G. morsitans*, but they remain infective to man.

Strains apparently identical with the laboratory-bred mixed strains were found in wild flies.

Two wild strains of *T. rhodesiense*, recovered from man, were compared with the Tinde strain of the same trypanosome. The mixture of one wild strain, from Kondoa, with the Tinde strain showed no variation from the parent strains. The other mixtures—*i.e.* the second wild strain from Mbugwe with the Tinde strain and with the Kondoa strain—were both morphologically distinct from the parent strains.

The experimental evidence shows that hybridization can apparently occur between *T. brucei*, *T. rhodesiense* and *T. gambiense*, and thus suggests that they are not three distinct species of trypanosome but variants of a single species. This necessitates changes in nomenclature, for which suggestions are made.

The practical implications of the data are discussed, with special reference to game policy and the control of sleeping sickness.

FAIRBAIRN, H. & CULWICK, A. T. (1950.) **Distribution of trypanosomes in blood films.** [Correspondence.]—*Trans. R. Soc. trop. Med. Hyg.* **44.** 145-146. 76

The writers maintain that trypanosomes are distributed at random with regard to the erythrocytes and their position is not governed entirely by the action of the glass spreader.

—JAS. G. O'SULLIVAN.

HOARE, C. A. (1948.) **The relationship of the haemoflagellates.**—*Proc. 4th Internat. Congr. Trop. Med. Malar.* pp. 1110-1118. 77

The relationships of *Leishmania* and *Trypanosoma* are discussed, particularly with regard to the connexion between human and animal pathogens. The connexion between *T. brucei*, *T. evansi*, *T. equinum* and *T. equiperdum* is brought out and a revised classification is given in the light of recent physiological studies.—JAS. G. O'SULLIVAN.

GUILHON, J. & LOGÉ, G. (1950.) Leishmaniose canine autochtone en Bretagne. [**Leishmania infection in dogs in Brittany.**]—*C.R. Acad. Sci.* **230.** 247-248. 78

Canine leishmaniasis has for long been con-

sidered a disease restricted to the Mediterranean coast. Most cases identified in dogs elsewhere have been traced to infection at the coast at some previous time, but occasional cases have been recorded in which no such contact was found, *e.g.* among dogs born and reared in Toulouse or Paris. The authors report one such case in Brittany, where the disease has not hitherto been recorded, in a dog which had never left the area. It is suggested that the source of infection was animals which were carrying the parasite and had visited the Côte d'Azur. The existence of an active focus of infection in the area where the dog was reared (near Saint-Nazaire) is considered unlikely.

—E. G. White.

Skoković, L. (1950.) Prilog laboratoriskoj dijagnostici trihomonijaze kod goveda. **[Laboratory diagnosis of bovine trichomoniasis.]** —*Vet. Glasnik.* **4.** 100-106. [Abst. from German summary.] **79**

Trichomonas foetus multiplied in 2–3 days in a medium of 10% serum broth with penicillin and survived up to 28 days. By subculture the organisms could be maintained for many months.—M. L. Clarke.

Moore, E. N. & Brown, J. A. (1951.) **A new coccidium pathogenic for turkeys, *Eimeria adenoeides* n. sp. (Protozoa: Eimeriidae).**—*Cornell Vet.* **41.** 124-135. [Authors' summary copied *verbatim*.] **80**

A new species of coccidium of the turkey, named *Eimeria adenoeides*, has been isolated and identified by single-cell technique.

The oocysts are ellipsoidal, and the sporulated oocysts usually contain from one to three refractile granules. The sporulation time is approximately 24 hours, at room temperature. The prepatent period is under five days (averaging about 112 hours). The patent period is around 13 days.

The range in length is 18·95 to 31·26 μ., and in width is 12·60 to 20·94 μ. The average size of the oocysts is 16·59 by 25·60 μ. The length-width ratio is 1 : 1·54. The shape and size of the oocysts of *E. adenoeides* by themselves cannot serve to distinguish them from the oocysts of *E. meleagridis* and *E. gallopavonis*.

The development of this species occurs in the lower part of the ileum, ceca, and rectum. It not only affects the superficial epithelium of the tips of the villi but also the mucosa of the crypts and deep glands. The site of infection is in the mucosa of the deep glands, which serves to distinguish it from the other previously described species.

Infected poults pass droppings that are quite fluid and may be blood-tinged. In heavy infections, mucous casts up to two inches in length are present. Upon opening the intestines, a caseous white exudate is present in severe infections. The ceca may contain caseous cores. The gross pathology produced by infection with *E. adenoeides* will not serve as a criterion for differentiating it from infections with other species.

E. adenoeides is highly pathogenic for poults under six weeks of age. It is possible to kill 100% of experimental poults up to five week of age with large doses of sporulated oocysts. Older poults develop a severe enteritis accompanied by little or no mortality. *E. adenoeides* is the most pathogenic of the known ellipsoidal species of coccidia that infect turkeys. Attempts to infect chickens, guinea fowl, pheasants, and quail failed.

Turkeys immunized against *E. meleagridis* were successfully infected with *E. adenoeides*. Turkeys immunized against *E. adenoeides* were successfully infected with *E. meleagridis*.

Sergent, E. & Parrot, L. (1950.) **Premunition in bovine piroplasmosis and human malaria.**—*Ann. trop. Med. Parasit.* **44.** 329-330. **81**

The interrelations between man and the plasmodia are similar to those between cattle and babesia. Indigenous North African cattle have no innate immunity to piroplasmosis, the resistance they have being due to previous infection and the acquisition of premunition. The authors state that babesia can cross the placental barrier. Attention is drawn to the danger of malaria eradication with the consequent disappearance of premunition.—Jas. G. O'Sullivan.

Delpy, L. P. (1946.) Nouvelles recherches sur la theileriose bovine pathogène en Iran. [*Theileria* **infections of cattle in Persia.**]—*Arch. Inst. d'Hessarek.* **2.** 79-107. [In French.] **82**

Persian cattle born of premune cows and reared under tick-free conditions from calfhood, were susceptible to a mild infection experimentally. Of those from non-infected areas, 50% lived up to 70 days on tick-infested pastures, without contracting theileriasis. Of the remainder, 40 % had detectable signs of disease, and 60% had a latent infection. Symptoms were seen especially in spring but the latent condition occurred in summer ad autumn. Suggestions are made as to the reasons for the appearance of acute symptoms.

—Jas. G. O'Sullivan.

BABOSHINA, N. A., ALI-ZADE, M. A. & SHMULEVICH, A. I. (1949.) **[Chemotherapy of theileriasis in cattle with "flavargine".]**—*Veterinariya, Moscow.* **26.** No. 9. pp. 27-29. 83

Flavargine (a soluble compound of silver lactate and 3,6 diamine - methylacridine containing 30% silver) was found to be 1·5 times more effective than trypaflavine in *Babesia* and *Theileria annulata* infections. It is bactericidal against streptococci, staphylococci, meningococci, gonococci and corynebacteria and retains its effectiveness in blood serum.

Forty cattle, 4–10 years old, with *Th. annulata* infection were divided into three groups. The first group of 14 was given flavargine intravenously at 0·0025 g. per kg.; recovery commenced in 1–6 days, but three died. The second group of 15 were treated on the first day and then with the urea preparations acaprin and LP_2; one died, the others recovering on the third or fourth day. The third group of 11 were given either acaprin, novoplasmin, proflavine-lactate, or proflavine-dichlorohydrate; eight died.—F.A.A.

ANON. (1948.) Un cas de toxoplasmose canine. **[A case of toxoplasmosis in a dog.]**—*Rapp. Inst. Past., Maroc.* pp. 18-19. 84

Two squirrels (*Xeros getulus*) were inoculated with material from a canine case of suspected leishmaniasis which proved to be toxoplasmosis. After successive passages the experimental animals died in seven days with numerous toxoplasms demonstrable in spleen smears.—JAS. G. O'SULLIVAN.

LANGHAM, R. F. (1949.) **Canine toxoplasmosis.** —*Amer. J. Path.* **25.** 569-573. 85

P.M. examination revealed pneumonia, hepatic necrosis and gastric and intestinal ulceration. Toxoplasms were demonstrated in the lesions.—JAS. G. O'SULLIVAN.

CHRISTIANSEN, M. & SIIM, J. C. (1951.) **Toxoplasmosis in hares in Denmark. Serological identity of human and hare strains of toxoplasma.** — *Lancet.* **260.** 1201 - 1203 [Authors' summary copied *verbatim.*] 86

Toxoplasmosis in hares is a well-established clinico-pathological entity, whose characteristic seasonal incidence in Denmark has its maximum in January-March and minimum in June-July. The toxoplasma of hares appears to be serologically identical with the human strain RH, and is equally pathogenic. The epidemiological significance of these findings is discussed.

SPLITTER, E. J. (1950.) **Ictero-anemia of swine.** —*Proc. U.S. Livestock sanit. Ass.* 54*th Ann. Meeting.* pp. 279-286. [Author's summary copied *verbatim.*] 87

A disease entity of swine characterized by an acute hemolytic anemia and icterus has been found to be due to an acute parasitic infection with a blood parasite identified as *Eperythrozoon suis.* The disease entity produced by this parasite is identical to the condition of swine known as ictero-anemia or anaplasmosis-like disease.

E. suis is a common blood parasite of swine in the enzootic area. The majority of young swine acquire infection during the summer months, and remain immune, latent, clinically unrecognizable carriers. The clinical disease depends upon the number of parasites which develop in the blood following infection, and the duration of their presence in large numbers. In the majority of swine light parasitic attacks take place and cause no visible damage. Heavier parasitic infections may develop in some pigs and result in subclinical symptoms of fever and mild anemia. Heavy parasitic infections which are sufficiently prolonged result in depression, anorexia, and fever. Rapid blood cell destruction ensues together with a spontaneous reduction in the number of hematozoa. The temperature usually returns to normal or subnormal as the parasites disappear. The animal exhibits marked weakness, pale and often icteric mucous membranes during the period of acute anemia. Death may occur in from one to five days or longer, following the appearance of clinical symptoms. Transmission is assumed to be by insect vectors. Neoarsphenamine exerts a specific parasiticidal action upon *E. suis.* Early treatment has a markedly beneficial effect upon the course of the disease. Specific therapy delayed until the acute anemia stage, can be expected to be of little or no value.

At the time this paper was prepared *E. suis* had been identified microscopically in 12 herd outbreaks of ictero-anemia in some 20 acutely affected swine. In addition subclinical symptoms have been observed in numerous animals in these herds associated with relatively heavy parasitic infections. Positive identifications of acute eperythrozoonosis have been made in Kansas, Iowa, and Missouri. It has been possible, thus far, to make positive microscopic identification in all cases of typical ictero-anemia in which blood films were prepared from living animals.

See also abstr. **144** (parasitology in Portuguese Guinea); **212** (intestinal micro-organisms); **224** (ruminal organisms); **245** (veterinary services in Venezuela); **256** and **258** (sterility caused by *Tr. foetus*); **286-287** (reports, India); **288** (report, Kenya); **289** (report, East Africa); **290** (report, Basutoland); **291** (report, Uganda Protectorate).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

STRZELECKI, B. (1950.) Spostrzeżenia poczynione przy szczepieniu psów przeciwko wściekliżnie. [**Observations on dogs vaccinated against rabies.**]—*Med. weteryn.* **6.** 359. **88**

In one district 4,580 dogs were vaccinated against rabies. Within three days of vaccination four dogs developed nervous signs, anorexia and muscular spasm, which passed off in a few days without any sequelae. Within two weeks a few pregnant bitches aborted.

—J. R. MITCHELL.

KÖHLE, W. (1949.) Zur Prophylaxe der Lyssa bei Bissverletzungen. [**Antirabic prophylaxis after bites.**]—*Klin. Med.* **4.** 281-290. [Abst. from abst. *Zbl. Bakt. I.* (*Ref.*) **148.** 142-143. (1950.)] **89**

Of 539 persons bitten by suspected animals and subsequently inoculated against rabies, only two died from rabies. These deaths may have been due to sepsis from the wounds.

—ROY MACK.

GIRARD, H., HIRTZ, J. & MACKOWIAK, C. (1950.) De la notion de seuil en matière de fièvre aphteuse. [**The threshold of infectivity in foot and mouth disease.**]—*Bull. Off. internat. Epiz.* **33.** 581-587. **90**

Previous work in identifying the F. & M. disease virus under the electron microscope is discussed. Further work along biological lines was made into minimum effective doses and it is shown that the threshold of infectivity is connected with a definite quantity of virus irrespective of the concentration of the solution. An attempt was made to relate the minimum effective dose with a definite number of virus particles as seen under the electron microscope. Approximate numbers only were possible and it is concluded that a minimum infective dose must contain at least 10,000 virus particles.

—G. V. LAUGIER.

MÖHLMANN, H. & PEHL, K-H. (1950.) Beitrag zur Pluralität des Maul- und Klauenseuche-Virus. [**The virus of foot and mouth disease.**] —*Zbl. Bakt. I.* (*Orig.*) **155.** 85-95. [English, French and Russian summaries.] **91**

It has repeatedly been observed that type A of F. & M. disease virus dominates over type B, and that in mixed infections type B soon fades out. Cows were infected with mixtures of two or all three types, and the virus from the animals typed by means of the complement-fixation test. If mixtures of B with A or C or both were used for infection, type B could not be found in the lesions or only in small quantities. One animal, injected with pure B virus but, by mistake, with a syringe that had been used before to inject A virus, had a small quantity of A virus in the lesions, and injection of this material into another cow yielded a pure A virus. This dominating characteristic of the A virus could still be observed if its concentration in the mixture was 10–1000 times less than that of the B virus. It can only partly be explained by the higher multiplication rate of type A; there must also be some mutual interference of the virus types as the yield of antigenic material from lesions due to mixed infections was less in total quantity than from lesions due to a pure type infection. In pigs it is the B virus which is predominant.

—A. MAYR-HARTING.

MACE, D. L., DUNNE, H. W., EICHHORN, E. A. & CAMARGO, N. F. (1951.) *In vitro* **cultivation of the Mexican strain (Vallée "A" type) of foot-and-mouth disease virus.**—*J. infect. Dis.* **88.** 212-223. [Authors' summary slightly modified.] **92**

A method is described for the successful propagation of a Mexican strain (MP-VI) of the Vallée "A" type of F. & M. disease virus. This virus was carried through 40 tissue culture serial passages. The cultures routinely showed virus titres, in susceptible cattle, in a range of $10^{-5\cdot0}$ to $10^{-6\cdot5}$. Eight additional culture series were carried successfully through 8 to 12 passages under identical conditions. A tenth culture series failed to grow virus beyond the third serial passage.

The method that proved successful for the propagation of the virus *in vitro* employed Roux flasks as culture containers. To 100 ml. of culture medium were added 4–25 g. of equal parts of upper and lower layers of minced bovine tongue epithelium. The flasks were inoculated with 1–15 ml. of seed virus and then laid on their sides in an incubator maintained at 37°C. for 24 hours. During this period the cultures were aerated by a slow flow of equal parts of oxygen and nitrogen that replenished the atmosphere above the surface of the culture. Although 10–15 ml. of seed virus were used for routine inoculation in culture passages, 1 ml. of seed virus was later found to be sufficient.

Cultures prepared with 4 g. of equal parts of upper and lower layers of bovine tongue epithelium showed virus titers as high as in cultures prepared in amounts up to 25 g.

When a modification of Baker's fluid was tried as the medium for propagation of the virus in tissue cultures the virus failed to grow on

serial passage. When 20% ox serum ultrafiltrate was added to the modified medium it then contained the essential ingredients for virus growth. The addition of nicotinic acid, pantothenic acid, riboflavin, thiamine chloride, pyridoxine, aginine and lysine to the medium failed to enhance the growth of virus.

There was no evidence as determined by cross-immunity and complement fixation tests that the serial propagation of the MP-VI strain of virus in tissue cultures changed its antigenic structure or produced aberrant forms.

Cattle recovered from induced infection with MP-VI virus, that had been serially passed through tissue cultures, were solidly immune when challenged with native MP-VI virus and the homologous tissue culture virus.

Virus propagated in tissue culture was used to produce an aluminium adsorbate vaccine similar to that made with virus propagated in the tongues of live cattle. It was found on limited trials to produce satisfactory immunity in cattle exposed to the native MP-VI virus.

Thomas, J. A., Thiery, J. P., Salomon, L. & Salomon, L. (1951.) Essais de culture du virus aphteux sur foetus de bovin en survie aseptique. [**Attempt to cultivate the virus of foot and mouth disease in bovine foetal tissues.**]—*Bull. Off. internat. Epiz.* **35.** 54-61. 93

Experiments on 38 bovine foetuses, 3–6 months old are described. The technique involved perfusion of the whole foetus using a mechanical heart-lung. Blood perfusion medium was diluted 50% with a buffer solution and adjusted to pH 7·6, and the whole kept at 37°C. The medium could be used for 30 hours without renewal and the duration of any experiment did not exceed 62 hours when it was stopped to collect virus. The virus had to be of recent passage and up to half the foetal skin area was inoculated intradermally. This yielded up to 141 g. of virulent skin in 30–60 hours. The virus maintained or even increased its virulence and grew in the inoculation site with no diffusion into the surrounding skin. No macroscopic lesions were produced. Pathogenic and antigenic properties of the virus were not modified. Improvements in technique especially the perfusion apparatus are envisaged.—G. V. Laugier.

Michelsen, E. & Schjerning-Thiesen, K. (1950.) **Experiments on adaptation of the virus of foot-and-mouth disease to chick embryos.**—*Nord. Vet.-Med.* **2.** 1060-1064. [In English. German summary. Abst. from English summary.] 94

Attempts to adapt 12 different strains of F. & M. disease virus to chick embryos yielded negative results. Alternate passage between g. pigs and eggs, cattle and eggs, and tissue culture and eggs, respectively, always led to a rapid inactivation of the virus.

The presence of a virus-inhibitory factor in embryonated eggs could not be demonstrated. Simultaneous inoculation of eggs with virus of F. & M. disease and virus of Newcastle disease appears sometimes to bring about a higher haemagglutination titre for the latter virus, but only in cases where the titre of this virus was low.

Rinjard, P., Bardach, M. & Bridré, J. (1946) Recherches sur la fièvre aphteuse. Hyperimmunisation des bovidés par un virus cultivé *in vivo* chez le cobaye. [**Hyperimmunization of cattle against foot-and-mouth disease using a virus cultivated *in vivo* in g. pigs.**]—*C.R. Acad. Sci., Paris.* **222.** 1533-1535. 95

[A footnote states that this paper was deposited at the Academy in a sealed envelope on the 18th August 1941 and was opened on the 27th May 1946 after Rinjard's death.]

Bardach had found that F. & M. disease virus could be cultured *in vivo* in a liposarcoma of g. pigs which was inoculable in series. 0·25 ml. of a suspension obtained by crushing such a liposarcoma and diluting 1:50,000 infected healthy g. pigs. Injection of six cattle that had recovered from F. & M. disease with 4–5 doses of such a suspension yielded a hyperimmune serum equivalent in protective strength to that obtained by routine methods. It is possible that this protective value may be enhanced by further injections. This method is thought to provide an economic source of antigen of value in the production of hyperimmune serum.—G. V. Laugier.

1948. **Control of foot-and-mouth disease. Report of Special Subcommittee to the Committee on Appropriations, United States Senate, on study of pernicious effect of foot-and-mouth disease as it exists in Mexico and elsewhere, progress of program to prevent entry of the disease into the United States, the most effective methods of combating and controlling the disease, and the proper location for the authorized research facilities.** pp. 20. Washington: U.S. Govt. Printing Off. 96

The Special Subcommittee's investigation covered a wide area and included all methods of control in use. The present distribution of the disease in the world and a short history of its appearance in the U.S.A. are given. The

economic losses resulting from outbreaks far outweighed the cost of control. Control measures in the U.S.A. on the usual classical lines are outlined. A note of warning appears here arising out of the increasing volume of shipping and the increasing number of ports of entry. In view of the specialized stock movement from the West to the Atlantic seaboard it is recognised that F. & M. disease would constitute a very real menace to the meat industry in the U.S.A.

The programme of control and eradication imposed in Mexico is detailed and is notable for the immensity of its scale. In the early stages 50,000 animals per week were slaughtered. Despite this, spread was not held and a buffer zone of immunizd animals was created. Some 500,000 cattle a month were being immunized up to the time of the enquiry and it is anticipated that this would be stepped up to one and a half million per month. Vaccinations were accompanied by a regular schedule of pre-vaccination and post-vaccination inspections occupying a 6 monthly cycle, carried out by two field forces. Vaccine production on an enormous scale was undertaken. A quarantine patrol of 600 range riders was imposed on the frontier. Mexican co-operation, poor at first, is now good.—G. V. Laugier.

Gulrajani, T. S. (1951.) **Studies on respiratory diseases of pigs. I. Modified haemagglutination-inhibition technique for titration of influenzal antibodies in pig and ferret sera. II. Antibody response to adjuvant vaccine against swine influenza.**—*J. comp. Path.* **61.** 48-59 & 60170. 97

I. Using the C_1 strain of swine influenza virus, G. found infected allantoic fluid of chick embryos superior to mouse lung or pig lung as an antigen for haemagglutination or haemagglutination-inhibition tests. Non-specific inhibition (N.S.I.) by normal pig sera was virtually eliminated by the use of g. pig red blood corpuscles (R.B.C.). Treatment of ferret sera with kaolin prior to titration and the use of g. pig R.B.C. greatly increased the antibody: N.S.I. ratio.

II. A swine influenza vaccine, consisting of formolized infected chick allantoic fluid with oily adjuvants, when inoculated subcutaneously into two sows and four seven-day-old piglets produced a much better H.I. antibody response than a similar vaccine without adjuvants; the immunity of the pigs was not challenged.

—J. T. Done.

Chu, C. M., Andrewes, C. H. & Gledhill, A. W. (1950.) **Influenza in 1948-1949.**—*Bull. World. Hlth. Org.* **3.** 187-214. **98**

The widespread influenza epidemic of 1948-49 in western Europe, originating in Sardinia, is reviewed. Its lower incidence in the United Kingdom and Scandinavia may have been due to an outbreak of A-prime virus influenza in 1947. Nearly all the strains from western Europe, from Italy to Iceland, were antigenically homogeneous, falling into the A-prime type first recognized in Australia in 1946 (Cam strain). The relative homogeneity of 1949 A viruses may partly be due to the fact that in this study the chances for laboratory variation of viruses were reduced to a minimum. The haemagglutination-inhibition test is desscribed, and the advantages are discussed of removing the non-specific inhibitor by crude filtrate of cholera vibrio-cultures. For initial typing of ten strains of B virus isolated during localized epidemics, the complement-fixation test with antigen prepared from chorioallantoic membrane and type-specific human sera gave better results than the haemagglutination-inhibition test. The antigenic homogeneity of the viruses suggests that the epidemic spread from an initial focus.—W. R. Bett.

Sulkin, S. E., Schwab, M. & Wallis, H. C. (1951.) **Isolation of Coxsackie viruses. Litter differences among suckling mice.**—*Proc. Soc. exp. Biol., N.Y.* **77.** 374-356. [Authors' summary copied *verbatim.*] 99

Data are presented which suggest differences in susceptibility of different litters of suckling mice used for the primary isolation of Coxsackie viruses. It is suggested that at least 2 litters including a total of 12 to 15 suckling mice be used for demonstrating Coxsackie vriuses in clinical specimens.

Lépine, P., Thieffry, S., Reinié, L., Sautter, V. & Martin. (1951.) Présence en France d'infections humaines du groupe Coxsackie (virus C). Isolement du virus. **[Human infections in France with viruses of the Coxsackie group. Isolation of virus.]**—*Ann. Inst. Pasteur.* **80.** 200-203. 100

The authors report the isolation of virus C from two cases with symptoms of atypical poliomyelitis. By the inoculation of an extract of the faeces from these cases into new-born mice a typical paralysis was produced.

—D. Luke.

Findlay, G. M. & Howard, E. M. (1950.) **Virus exaltation.**—*Brit. J. exp. Path.* **31.** 45-50. 101

When two viruses are inoculated into the

same host, one may exalt the virulence of the other. M.E.F. 1 mouse-adapted poliomyelitis virus and Watt mouse encephalomyelitis virus increase the virulence of Columbia SK virus in mice.—W. R. Bett.

Simms, B. T. (1951.) **Report on infectious equine encephalomyelitis in the United States in 1950.** Washington 25, D.C.: United States Department of Agriculture, Agricultural Research Administration, Bureau of Animal Industry. May 31. 102

Infectious equine encephalomyelitis was reported from 33 States during 1950, with a total of 1,023 recorded cases, the lowest number since annual surveys were instituted by the Bureau. The incidence was highest from July to October, and the average mortality rate of 41% showed a reduction of 19% over the figure for 1949. The geographical distribution is detailed.—Clive Briggs.

Gupta, K. C. S. & Verma, N. S. (1949.) **Rinderpest in wild ruminants.**—*Indian J. vet. Sci.* **19.** 219-224. 103

An outbreak of rinderpest occurred in an Indian zoo among barking deer, hog deer, sambhar, neelghai, spotted deer, four-horned antelope and black buck. The disease lasted for about three months and the mortality was 50–100%. Death of some cows in the neighbourhood from rinderpest had occurred and the importation of fodder grass from outside was responsible for the outbreak. The diagnosis was confirmed by transmission experiments and immunity tests.—P. C. Gangulee.

Anon. (1950.) Conservation du virus de la chèvre au Laboratoire de Recherches Vétérinaires de Kisenyi. [**Preservation of the rinderpest goat virus at Kisenyi, Belgian Congo.**—*Bull. Off. int. Epiz.* **33.** 201. 104

This note by the Chief Veterinary Officer, Léopoldville, states that experience of the goat-adapted rinderpest virus at the Kisenyi laboratory since 1944-45 has proved it to be unsuitable for use in that area for two reasons:—(a) reactions in vaccinated cattle are too severe and cause a considerable mortality; (b) it is very difficult to maintain goats at Kisenyi. This difficulty arises from a high incidence of intercurrent disease in goats brought to the laboratory. The exact nature of the intercurrent disease is not made clear in this note. It is said not to be caprine contagious pleuro-pneumonia. Contagious ecthyma is mentioned, but it is not definitely stated that this disease is the cause of the mortality. Trials are to be made with the rabbit-adapted virus.

—W. S. Marshall.

Saito, K. (1951.) **An outbreak of cattle influenza in Japan in the fall of 1949.**—*J. Amer. vet. med. Ass.* **118.** 316-319. [Author's summary copied *verbatim*.] 105

An outbreak of influenza in cattle occurred during the latter half of 1949 in the western and middle part of Japan. There is little doubt that the cause of the disease is a virus, and efforts are now being made for its isolation. In addition, a survey has been made of all the factors that pertain to this outbreak and it is expected that the final analysis will yield interesting results. [The condition resembles three-day fever of cattle in India and Australia.]

Wilson, D. R. & Gordon, W. S. (1948.) **Studies in louping-ill. IV. Passive immunity.**—*J. comp. Path.* **58.** 210-226. 106

Laboratory and field experiments are recorded assessing the establishment of passive immunity against louping-ill virus in sheep and lambs. The length of such immunity was increased by using large doses of antiserum but protection was limited to visceral tissues. Small doses of antiserum were effective in arresting the virus until the time when a temperature reaction occurred. Sheep hyperimmune serum was more lasting than horse serum and was more effective in controlling natural disease in lambs. Maternal antibodies were passed to lambs until serum levels in mother and young closely corresponded. This natural passive immunity in lambs was more persistent than that induced parenterally but was not changed to active immunity by the administration of virus.

—K. G. Towers.

Goret, P., Girard, H., Joubert, L., Mackoviack, C. & David, J. (1951.) Sur une grave épizootie de peste porcine dans la région marseillaise. [**A severe epidemic of swine fever in the Marseilles district.**]—*Rev. Med. vet., Lyon et Toulouse.* **102.** 65-89. 107

An epidemic of acute and peracute swine fever was effectively controlled by crystal violet vaccination coupled with hygienic measures.

—J. T. Done.

Fitko, R. (1950.) Przyczynek do nosicielstwa wirusa pomoru świń. [**Carriers of the virus of swine fever.**]—*Med. weteryn.* **6.** 458-460. 108

F. believes that pigs which survive an outbreak of swine fever carry the virus in the lymph nodes for the rest of their lives. He gave details of cases which he considered to support this view, but the evidence is not in accord with what is known about the disease. The editor of *Med. weteryn.* added a note

emphasizing that the author had not undertaken necessary work to prove that the cases he described were actually swine fever.

—J. R. Mitchell.

Ching, L. R. & Cheng, C. T. (1948.) **A preliminary report on hog-cholera virus propagation in rabbits.**—*J. Agric. Ac. of China.* **186.** 39. [Abst. from abst. in *Bull. Inst. Pasteur.* **47.** 724. (1949).] **109**

It is stated that after four passages of swine fever virus in rabbits it lost its infectivity for pigs. The incubation period in rabbits varied from 24 to 116 hours.

Buck, G. (1950.) La paralysie contagieuse des porcs à Madagascar. [**An infectious paralysis of pigs resembling Teschen disease in Madagascar.**]—*Arch. Inst. Pasteur. Tananarive.* pp. 43-48. [Extract Ann. Rep. 1949.] **110**

An extensive outbreak of a disease clinically and histopathologically similar to Teschen disease is reported. Experimental transmission was possible only in animals in subnormal health, and B. is of the opinion that the disease may be present subclinically in otherwise healthy animlas.—J. T. Done.

Martin, L. A. (1950. Maladie de Carré à forme nerveuse. Transmission du virus au lapin. [**Nervous distemper, transmission to the rabbit.**]—*Bull. Acad. vét. Fr.* **23.** 291-294. **111**

The successful transmission to rabbits by various routes of "classical" canine distemper virus is claimed. The infection in rabbits is said to be manifested only by a temperature rise, although on passage a mortality of 70–80% is attained. Four successful transmissions of rabbit-virus to young dogs are decribed. Canine antiserum to distemper virus neutralized rabbit-virus.—A. N. Worden.

Goret, P., Martin, L. A. & Joubert, L. (1950.) Pouvoir pathogène pour le lapin du virus de Carré adapté au furet. [**Pathogenicity for rabbits of ferret-passaged distemper virus.**]—*Bull. Acad. vét. Fr.* **23.** 295-297. **112**

It was claimed that it was possible on repeated passage to set up, both at Lyons and at Casablanca, fatal infection in rabbits with ferret-adapted canine distemper virus.

—A. N. Worden.

Barner, R. D. (1050.) **Rapid laboratory diagnosis of infectious canine hepatitis.**—*M.S.C. Vet.* **11.** No. 1 pp. 30-31. **113**

As it is not always possible to give a definite diagnosis from a P.M. examination, B. describes a rapid method of demonstrating the intranuclear inclusions. An impression smear is made by pressing a slide on a freshly cut surface of the liver, dried without undue heating and fixed by placing for 3–5 min. in methyl alcohol. After washing gently in tap water the preparation is stained (as for a section) with haematoxylin and alcoholic eosin Y, dehydrated, cleared in xylol and then either allowed to dry or mounted in balsam. It is examined with an oil immersion lens for the presence of the typical intranuclear inclusion bodies.—J. R. Hudson.

Poppensiek, G. C. & Baker, J. A. (1951.) **Persistence of virus in urine as factor in spread of infectious hepatitis in dogs.**—*Proc. Soc. exp. Biol., N.Y.* **77.** 279-281. [Authors' summary copied *verbatim.*] **114**

The virus of infectious hepatitis of dogs has been recovered from the urine at intervals of time extending from 3 days after inoculation to at least 161 days afterwards. Inasmuch as blood, saliva, nasal washings and feces from apparently recovered dogs did not contain virus, it appears that infected urine is important in the spread of the disease. Finding a focal interstitial nephritis indicated that the source of virus eliminated in the urine is the kidney.

Moulder, J. W. & Weiss, E. (1951.) **Respiratory metabolism of the extra-embryonic membranes of chick embryos in relation to multiplication of the agent of feline pneumonitis.**—*J. infect. Dis.* **88.** 68-76. **115**

This report is part of a general investigation into the relationship between the reproduction of certain viruses and the host cell metabolism. The feline pneumonitis virus can be cultivated on the extra-embryonic membranes of chicks killed by chilling and the respiratory metabolism of membranes from dead chicks has been investigated. The techniques used are described. Growth of the virus on dead embryos produced no change in the respiratory metabolism of the extra-embryonic membranes. When embryos were killed by the virus the oxygen uptake of the membranes declined to a low level within 24 hours and virus multiplication ceased. The results suggest that the virus is dependent on a high level of metabolism in the host cell for its multiplication.—D. Luke.

Pellissier, A., Ceccaldi, J. & Arnoult, H. (1950.) Isolement d'un virus de cobaye à Brazzaville. [**Isolation of a latent virus of**

the g. pig.]—*Ann. Inst. Pasteur.* **79.** 200-202. 116

The authors described a disease of g. pigs, caused by a virus which is present in a latent state in many animals and can be activated either by the injection of blood and organ suspensions from other g. pigs or by intraperitoneal injection of sterile milk. Animals so injected react with high fever and die. The pathological findings include the presence of a peritoneal exudate, swelling of the spleen, and the presence of inclusion bodies in the endothelial cells of the peritoneum. The virus is transmissible to mice, and the authors stated that they found elementary bodies in the pleural exudate of infected mice. The virus differs from other viruses that have been described as latently present in laboratory animals, and perhaps belongs to the psittacosis-lymphogranuloma group.

—A. MAYR-HARTING.

BEACH, J. R. (1951.) **Some significant findings from research on poultry viruses.**—*Cornell vet.* **41.** 81-99. 117

B. discussed fowl pox, infectious laryngotracheitis, infectious bronchitis and Newcastle disease. He outlined the way in which research into these virus diseases has contributed to our knowledge of virus diseases in general.

—D. LUKE.

MORNET, P., ORUE, J. & BACHIR, S. (1950.) Sur une enzootie de maladie de Newcastle à Dakar. **[An outbreak of Newcastle disease at Dakar.]**—*Bull. Soc. Path. exot.* **43.** 649-652. 118

An outbreak of Newcastle disease is recorded at Dakar commencing in May 1950. The origin of the outbreak was not determined.

—D. LUKE.

BALLANTYNE, E. E. & BIGLAND, C. H. (1951.) **Newcastle disease survey in Alberta.**—*Canad. J. comp. Med.* **15.** 131-136. [Authors' summary slightly modified.] 119

The procedure of a Newcastle disease survey in Alberta is given. Results of tests representing 1% of the poultry population revealed only one suspect flock out of 306 sampled.

PILLAI, C. P. (1949.) **Modification of Newcastle disease (Ranikhet) virus.**—*Trop. Agriculturist.* **104.** 190-204. 120

Several serial passages of Newcastle disease virus (Philippine strain) were made in ducklings 1–20 days old by intracerebral injection of 0·1 ml. of a 10% suspension of brain tissue of the ducklings which either died or were killed at the height of the disease. Nervous and digestive symptoms were observed in all passages, but the temperature reaction was present only up to the fifth passage. Cross tests in white Leghorns indicated that the virus became non-pathogenic for fowls beginning with the sixth passage, fowls injected with brain material from subsequent passages being immune to 10,000 M.L.D. of potent virus. Tests on tissue of ducklings indicated that the virus had acquired an affinity to nervous tissue after the fourth passage.—C.M.S.

SINHA, K. C. & DATTA, S. (1950.) **Effect of reducing agents on the virus of Newcastle (Ranikhet) disease. 1. Ascorbic acid, 2. cysteine hydrochloride.**—*Current Sci.* **19.** 343-344. 121

Ascorbic acid in concentration of 0·05 mg. per ml., 0·1 mg. per ml. or 0·2 mg. per ml. and at pH 7·4–7·6 was added to Newcastle disease virus to make a final dilution of 100 M.L.D. in 0·5 ml. The mixture was stored aerobically and anaerobically at 5°, 15°, 32° and 37°C. for 24 hours. The virus was found to be living and was virulent when tested on chicks 6–8 weeks old.

Similar results were obtained when cysteine hydrochloride in the above strengths was used with the virus.—M. P. JOHARI.

SINHA, K. C. & DATTA, S. (1950.) **Antigenic property of irradiated Newcastle (Ranikhet) disease virus.**—*Current Sci.* **19.** 344. 122

Newcastle disease virus suspension in saline after 7–8 min. irradiation with an alpine homesun lamp model VIII, at a distance of 36 in. from the arc was killed and lost its antigenic property, whereas it remained fully virulent after 1–6 min. of irradiation.

—S. L. MUKHERJI.

KAHNKE, M. J. (1951.) **A hemolysis inhibition test for the detection of antibodies to Newcastle disease virus.**—*J. Immunol.* **66.** 507-513. [Author's summary slightly modified.] 123

Within given conditions, the greater the concentration of Newcastle disease virus, the greater was the haemolysis produced in chicken red cells, and the greater the amount of immune serum added to the virus, the greater was the inhibition of haemolysis. Based on these findings, a laboratory test for NDV antibodies is presented. The results of the haemolysis inhibition test correlated with a haemagglutination-inhibition test.

HUNTER, M. C., KEENEY, A. H. & SIGEL, M. M. (1951.) **Laboratory aspects of an infection with Newcastle disease virus in man.**—*J. in-*

fect. Dis. **88.** 272-277. [Authors' summary copied *verbatim.*] **124**

Newcastle disease virus was isolated from the eye washings and blood serum of an accidentally infected patient. Following a definite systemic reaction there was an immune response similar to those observed in certain other virus diseases. Inclusion bodies were noted in the cytoplasm of epithelial scrapings from the conjunctiva, but the significance of these findings has not yet been fully established.

FABRICANT, J. (1951.) **Studies on the diagnosis of Newcastle disease and infectious bronchitis. IV. The use of the serum neutralization test in the diagnosis of infectious bronchitis.**—*Cornell vet.* **41.** 68-80. **125**

The importance of using a suitable strain of virus is emphasized. Many strains are inconsistent in their ability to kill chick embryos and to yield satisfactory serum titres. F. describes his technique in detail. He concludes that a titre of 1 : 100 or more indicates previous exposure to virus. A titre of 1 : 10 occurred often in susceptible birds. The test is of little value in the early stages of infection. Positive titres were reached only 12–14 days after the appearance of respiratory symptoms.

—D. LUKE.

BEAUDETTE, F. R. (1951.) **Infectious bronchitis and Newcastle disease.**—*Canad. J. comp. Med.* **15.** 65-71. **126**

Differential diagnosis in diseases of the respiratory tract in chickens is difficult, even when laboratory facilities are at hand. The two diseases that are most alike are infectious bronchitis and Newcastle disease. Host range, avenues of entrance, incubation period, mortality, necropsy findings, isolation and activity of the viruses, infection of embryos, serological tests, immunization and other questions are discussed in detail.—R. GWATKIN.

I. LESLEY, S. M., FRENCH, R. C., GRAHAM, A. F. & VAN ROOYEN, C. E. (1951.) **Studies on the relationship between virus and host cell. II. The breakdown of T2r+ bacteriophage upon infection of its host *Escherichia coli*.**—*Canad. J. med. Sci.* **29.** 128-143. **127**

II. FRENCH, R. C., LESLEY, S. M., GRAHAM, A. F. & VAN ROOYEN, C. E. (1951.) **Studies on the relationship between virus and host cell. III. The breakdown of P^{32} labelled T2r+ bacteriophage adsorbed to *E. coli* previously infected by other coliphages of the T group.**—*Ibid.* 144-148. [For first paper, see *V.B.* **21.** 2037.] **128**

I. & II. Preparations of bacteriophage were obtained with sufficiently high specific activity to enable metabolism experiments to be carried out on the growth of the labelled virus in the host cell. Infection of *Bacterium coli* with the labelled bacteriophage resulted in conversion of part of the isotope to a form soluble in 5% trichloracetic acid. The acid soluble P was used as a measure of the breakdown of the virus. The results suggested that infection of cells by phage stimulates a mechanism whereby phage absorbed at a later time is broken down extensively at the cell surface. Apparently actual infection of the cell with T2r+ virus or some of the other T phages was required before the breakdown mechanism was induced. Adsorption to the cell was not sufficient.

—R. GWATKIN.

BALDELLI, B. (1950.) La febbre Q—nuova entità morbosa trasmissibile degli animali all'uomo. **[Q fever, a disease transmissible from animals to man.]**—*Zooprofilassi.* **5.** 143, 144-148, 151-164, 167-171 & 173-176. **129**

In this extensive review of our present knowledge of Q fever (covering 80 references to the literature up to 1949) B. begins with the history, geographical distribution and symptomatology of the disease in man, and goes on to consider its characteristics in domestic animals. A good deal of space is given to the experimental infection, both in laboratory and in domestic animals, and in the case of cattle, the experiments of Parker *et al.* [*V.B.* **21.** 399] are reported in detail. A further chapter is devoted to the occurrence of *R. burneti* in wild animals and to its distribution in various arthropod vectors throughout the world. The review is concluded by a chapter on the origin of the infection and on the various modes of its transmission, both in domestic animals and in man.—G. P. MARSHALL.

BALDELLI, B. (1950.) La febbre Q negli ovini. **[Q fever in sheep.]**—*Zooprofilassi.* **5.** 369-372 & 375-383. [English summary.] **130**

On the occasion of an epidemic of human Q fever in an Italian country town, B. was able to show that an outbreak of Q fever existed in a herd of sheep which was daily driven to pasture along streets which formed the centre of the human epidemic.

The identity of the infection in sheep was established by serological tests. The g. pig test revealed the presence of *R. burneti* in the milk and in various organs of slaughtered sheep from the infected herd.—G. P. MARSHALL.

BRACHER, G. (1950.) Über eine Q-Fieber-epidemie in der SBB-Werkstätte Zürich-Altstetten. Beitrag zur Epidemiologie und Symptomatologie des Q-Fiebers. **[An epidemic of Q fever in the Zürich-Altstetten State Railway Works.]**—*Praxis.* **39.** 253-254. [Abst. in *Trop. Dis. Bull.* **48.** 250. (1951), copied *verbatim.*] 131

This epidemic of Q fever occurred in the months October, 1948, to February, 1949. Among a total of about 1,165 persons employed there were 90 cases of illness diagnosed as influenza, atypical pneumonia and other diseases of the kind. Complement-fixation tests were carried out on 60 of the patients, usually about five to seven weeks after the attacks. All the 14 positive reactions that occurred were among 475 persons employed in one section of the works which was situated near a yard in which wagons bringing cattle to a nearby slaughterhouse were washed down. The climatic conditions during the period were favourable to the formation of dust and it seemed likely that the source of infection was the inhalation of the infected dust particles.

Among 110 of the workers at the slaughterhouse 19 gave positive reactions and the proportion of positives was greatest among the persons who came into contact with living cattle.

MIRRI, A. (1950.) La "febbre Q" negli animali in Sicilia e diagnosi allergica della "febbre Q" negli animali. **[Q fever in the animals of Sicily and the diagnosis of the disease in animals, by an allergic test.]**—*Ann. San. Pubblica.* **11.** 917-926. [Abst. from abst. in *Trop. Dis. Bull.* **48.** 251. (1951.)] 132

M. had already employed with success an allergic test for brucellosis, in which a preparation called "Brucellini Mirri" was injected subcutaneously into one lower eyelid of the animal. The test for Q fever was carried out with the Lederle-Laboratories' antigen, titre 1-32, made from the Nine-Mile strain of rickettsia. The quantities injected were 0·2 cc. for sheep and goats, and 0·37 cc. for cattle. The reaction consists in a swelling of the lid on the 3rd or 4th day, reaching its maximum one or two days later, and persisting for a considerable time. The results of the test were quite definitely positive or negative. Comparative results of tests of the allergic and complement-fixation types are shown in a table.

WOLFF, J. W. (1950.) **A new staining method for rickettsiae.**—*Doc. Neerl. Ind. Morb. Trop.* **2.** 327-328. [In English.] 133

Two stock solutions were used: Stevenel blue (medicinal methylene blue and potassium permanganate) and eosin. Intracellular rickettsia stained dark violet, and stood out clearly against the light, slate-blue background. —W. R. BETT.

RUIZ SANCHEZ, F., PONCE DE LEON, E. & RIEBELING, R. (1949.) Aglutininas para el *Proteus OX*19 en los cerdos de Guadalajara, Jal. **[Agglutination of *Proteus OX*19 in pigs in Guadalajara, Mexico.]**—*Medicina.* **29.** 463-464. [Abst. in *Trop. Dis. Bull.* **47.** 457. (1950), copied *verbatim.*] 134

Investigation of specific agglutinins in the serum of pigs resulted in the finding of agglutination of *Proteus OX*19 in 72·3% of specimens. Titres varied between 1/20 and 1/320. Possible explanations of these findings are suggested and the need for confirmatory experimental evidence is stressed.

PIRIE, N. W. (1950.) **A biochemical approach to viruses.**—*Nature, Lond.* **166.** 495-496. 135

Viruses fall between the twin stools of chemical and biological criteria—or between the experimental methods characteristic of the biochemical and of the purely biological laboratory. They cannot be synthesized as yet and they cannot be cultivated except on living tissue. Suitable *in vitro* treatment may enhance infectivity, yet characteristic nucleoproteins (the predominant constituent of a series of plant viruses) have been found not to carry infection. The size and state of aggregation of particles of nucleoprotein are discussed in relation to infectivity.—MALCOLM WOODBINE.

See also abstr. **28** (swine fever and swine erysipelas); **30** (role of a virus in bovine pasteurellosis); **178** (joint WHO/FAO report); **245** (veterinary services in Venezuela); **285** (report, Gt. Britain); **286-287** (reports, India); **288** (report, Kenya); **291** (report, Uganda Protectorate).

IMMUNITY

I. BOULANGER, P. & RICE, C. E. (1951.) **Parallel studies of complement and coagulation. II. The relative effects of dicumarol.**—*Canad. J. med. Sci.* **29.** 5-12. 136

II. RICE, C. E., BOULANGER, P. & PLUMMER, P. J. G. (1951.) **Parallel studies of complement and coagulation. III. The effect of the protein level of the diet.**—*Ibid.* 13-24. 137

I. In a series of parallel studies of complement and coagulative activity, dicumarol was used because of its well recognized anti-

coagulative effect *in vivo*. G. pigs were given 15 daily oral doses of 5 mg. of dicumarol in 2 ml. of 5% glucose solution. These and the untreated group were bled on the 3rd and 16th days. There was a marked increase in the prothrombin time values of the plasma in the dicumarol group, without any accompanying change in the whole complement titre of the serum or on its relative concentration in the four major complement components.

II. The complement and coagulative activities of the blood of three groups of 20 g. pigs on diets containing 2·3–26·7% protein were studied. The mean complement titres were lower and the prothrombin times longer in the group on the lowest protein ration. The fourth complement component, C'4 appeared to be the most affected. Sera of g. pigs receiving less protein were lower in total protein content and had lower albumin-globulin ratios than sera from those on the higher protein diets. No relationship could be demonstrated between coagulation time and the serum protein content.

—R. Gwatkin.

Christian, R. M., Ervin, D. M. & Young, L. E. (1951.) **Observations on the *in vitro* behaviour of dog isoantibodies.**—*J. Immunol.* **66.** 37-50. 138

The dog has A, B, C and D haemagglutinins and agglutinogens, the latter occurring naturally. There are variants of A. The following properties of these isoantibodies were investigated: thermal amplitude, heat stability, haemolytic activity, complement fixation, suspension media and diluents, and sensitization for antiglobulin tests. Comparisons were drawn with human haematology.

—John Seamer.

Formaggio, T. G. & Cameroni, V. (1949.) Primi risultati sperimentali sull'azione degli antisieri immuni nella cavia gravida. **[The action of antisera in the pregnant g. pig.]**—*Boll. 1st. sieroter., Milan.* **28.** 1-9. [Abst. from English summary.] 139

The authors studied the effects of intramuscular or intraperitoneal injections of single and repeated doses of immune anti-g. pig sera into g. pigs during pregnancy, observing that abortion always occurred and that the pregnant animals had a resistance considerably superior to that of the controls to the haemolytic action of the antisera themselves.

They discuss from various aspects, the various hypotheses that can be advanced to interpret the experimental results, an interpretation made difficult owing to the little knowledge we have about the transplacental passage of antibodies, and the immunological and biochemical changes in the animal during pregnancy.

Among the numerous hypotheses to explain the abortion, besides that of transplacental passage of antibodies, the following deserve consideration: damage caused by the antigen—antibody reaction in the mother and the foetus by haemolytic shock, placental lesions determined by antibodies, etc.

The greater resistance of pregnant animals can be explained by supposition, on the basis of an increased anti-haemolytic power in pregnant animals owing to the presence in the plasma of soluble antigens, deriving from the foetal metabolism.

Eyquem, A. (1949.) L'ictère nucléaire expérimental. **[Experimental haemolytic jaundice in dogs.]**—*J. belge Neurol.* **49.** pp. 965-986. 140

Three syndromes could be induced in young dogs or cats by the injection of rabbit anti-dog or anti-cat serum, according to the size of the dose employed. With small doses, only a light anaemia lasting from 8–12 days resulted. With somewhat larger doses of progressive jaundice developed in 2–4 days, and with heavy doses there was a severe anaemia, accompanied by haemolysis, haemoglobinuria and haemoglobinaemia resulting in death in about ten hours. The histological lesions resembled those of neo-natal jaundice in infants. Caution is expressed in interpreting the results fully, but it is suggested that the obviously complex mechanism is made up of "type allergy" reactions, with consequences such as local anoxia.—A. N. Worden.

Lehnert, E. (1951.) Zur Frage der Bedeutung im Blut normal vorkommender Autoisohämagglutinine für die Blutkörperzerstörung bei gewissen pathologischen Prozessen. Untersuchungen über die intermittierende Hämoglobinämie (-urie) des Pferdes. **[The role of autoisohaemagglutinins of normal blood in certain disease conditions. Intermittent haemoglobinaemia (-uria) in horses.]**—*Mh. prakt. Tierheilk.* **3.** 1-34. 141

To support the theory that auto-isohaemagglutinins normally present in blood can bring about the destruction of erythrocytes in certain pathological states, a study was made on blood obtained from a horse with intermittent haemoglobinuria. Alteration of the electrical potential on the surface of the corpuscles together with alteration in agglutinating pro-

perties and sedimentation rate was found. This suggested that adsorption of auto-isohaemagglutinins on to the corpuscles occurs when there is an alteration in the colloidal state of the plasma.—J. A. NICHOLSON.

LANDAU, S. W., NELSON, W. A. & GAY, L. N. (1951.) **The effect of adrenocorticotropic hormone (ACTH) and cortisone on histamine reactions and anaphylactic reactions in guinea pigs.**—*Johns Hopk. Hosp. Bull.* **88.** 395-401. [Authors' summary copied *verbatim.*] 142

ACTH given in a single dose or every six hours for four days did not prevent histamine effects on the intestinal strip of guinea pigs. ACTH or cortisone given every six hours for four days did not prevent death from one lethal dose of histamine.

ACTH given in a single dose or every six hours for four days did not prevent anaphylactic reactions in vivo or in vitro in actively or passively sensitized guinea pigs. ACTH or cortisone given every six hours for four days did not decrease the mortality from anaphylactic shock in actively sensitized g. pigs.

BANNISTER, G. L. (1951.) **Avian blood changes following injections of cortisone.**—*Canad. J. comp. Med.* **15.** 169-171. [Author's summary copied *verbatim.*] 143

Twenty aged White Leghorn hens were injected daily with cortisone acetate for thirteen days. Although not consistent in all birds, the resulting changes in the blood picture nevertheless indicated that they simulated those found in the blood of persons and mammals following cortisone acetate injections, in that there was an increase in the number of heterophiles and a decrease in eosinophils and lymphocytes. In general, the increase in the heterophiles was not as great in the diseased group as in the normal birds, nor was the decrease in lymphocytes so marked.

See also absts. **9** (simultaneous immunization of horses against anthrax and tetanus); **14** (B.C.G.); **17** (acid-fast allergens); **27** (haemagglutination in swine erysipelas); **28** (swine fever and swine erysipelas); **38** (pullorum disease); **44** (blood and milk titres in brucellosis); **54** (brucellosis); **60** (leptospirosis); **61** (blackleg vaccines); **70** (bovine contagious pleuro-pneumonia vaccine); **88-89** (rabies); **95** (F. & M. disease); **97** (swine influenza); **104** (rinderpest); **106** (louping-ill); **123** (Newcastle disease); **132** (allergic test in Q fever); **134** (agglutination of *Proteus OX*19); **280** (identification of proteins of serum albumin by precipitation and complement-fixation tests); **286-287** (reports, India).

PARASITES IN RELATION TO DISEASE [GENERAL]

TENDEIRO, J. (1949.) Subsídios para o conhecimento da fauna parasitológica da Guiné. **[Veterinary parasitology in Portuguese Guinea.]**—*Bol. Cultural Guiné Portuguesa.* No. 11. pp. 639-738. [English and French summaries.] 144

This is a record of parasites identified in domestic and wild animals in Portuguese Guinea over a period of four years. The blood parasites include trypanosomes (in animals and birds), piroplasms, *Haemoproteus, Leucocytozoon, Plasmodium, Rickettsia* and *Bartonella.* The insects of veterinary interest belong to the orders Mallophaga, Anoplura, Aphanaptera and diptera. Many of these are here recorded for the first time in that territory.

Among the arachnids the mange mites and the ticks were of great importance. The list includes one new species, *Aponomma halli* parasitising *Varanus niloticus* and *Varanus exanthematicus.*

The list of trematodes, cestodes and nematodes was recognized as being far from complete, but all except two of the species were recorded for the first time in Portuguese Guinea.

Eleven new species of microfilariae were noted, all of avian origin.—I. W. JENNINGS.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

GURSKI, M. A. (1949.) **[Treatment of louse infestation.]**—*Veterinariya, Moscow.* **26.** No. 9. pp. 29-31. 145

In laboratory tests on infested cattle and goats exposure to 3·5–4% SO_2 in a vapour bath killed *Haemotopinus* spp. in 45–50 min. at 25–30°C., and a 2·5% concentration killed *Trichodectes* spp. in 30 min. Both 10% D.D.T. and 4% soap "K" [composition not stated] killed the latter and their eggs within 24 hours. For some months after a single application of either 50% D.D.T. or 30% phenothiazine any larvae hatched were killed; mixed 1:3 with talc the latter was lethal to adults in 6–12 hours. Lime-sulphur was the most effective preparation used, but no details are given.—F.A.A.

JOHNSTONE, I. L. (1951.) **Studies on lamb-marking dressings for the prevention of fly-strike.**—*Aust. vet. J.* **27.** 53-58. 146

Various substances were tested on 10,034 lambs as repellents in lamb-marking dressings for the control of fly-strike. Oily dressings, phenolic preparations, copper sulphate and sodium arsenite delayed healing and sometimes increased the number of strikes. A bland dressing containing 10% Ceylon citronella oil at the rate of 100–120 lambs per gal. dressing,

was repellent to *Lucilia cuprina*. It is expensive and this was the minimum amount required to provide good protection. Of other repellents tested, Huon-pine oil and D.D.T. were inferior to Ceylon citronella oil, but dibutyl phthalate and benzene hexachloride were both good. Several cheaper commercial citronella compounds were tested, but proved unreliable.

The formula of "borocit", a good dressing containing Ceylon oil of citronella, is given.

—M. T. Scott.

Granett, P., Haynes, H. L. & Helm, R. W. (1951.) **Further evaluation of butoxypolypropylene glycol as a fly repellent for dairy cattle.**—*J. econ. Ent.* **44.** 97-102. [Abst. from authors' summary.] **147**

Field tests with butoxypolypropylene glycol 800 in oil and water emulsion combination with pyrethrins, allethrin (the ester of *dl*-allyl-hydroxy-methyl cyclopentenone + a mixture of *cis* and *trans dl*-chrysanthemum monocarboxylic acids) or thanite (secondary terpene-alcohol thiocyanyl acetate) were made. Dressings on dairy cattle were highly effective on the day of application, against *Siphona* (*Lyperosia*) *irritans, Stomoxys calcitrans* and *Musca domestica*, but the protection generally diminished on the following day.

Although emulsions containing butoxypolypropylene glycol appeared as effective as oil base spray, the addition of bentonite sulphur as a sticking agent did not increase repellency.

Mikačić, D. (1949.) Krpelji (Ixodidae) Cresa i Lošinja s osvrtom na geografsku proširenost pojedinih vrsta krpelja u Jugoslaviji. **[Ixodidae of the Adriatic islands of Cres and Lošinj with a map of distribution of tick species in Yugoslavia.]**—*Vet. Arhiv.* **19.** 14-32. [English and French summaries. Abst. from English summary.] **148**

In the observations in Yugoslavia here recorded seven species of ticks were found on domestic ruminants, one of these, however, bing regarded as a sub-species of *Ixodes ricinus*, which M. names *Ixodes ricinus atypicus*. Others were *Rhipicephalus bursa, Hyalomma dromedarii, Rhipicephalus sanguineus, Boophilus calcaratus, Dermacentor silvarum* and *Haemaphysalis punctata*.

A map is given showing the distribution of the ticks.

Bouvier, G. (1947.) Répartition des ectoparasites des bovidés dans le canton de Vaud. **[Distribution of ectoparasites of cattle in the canton of Vaud, Switzerland.]**—*Mitt. schweiz. ent. Ges.* **20.** 686-688. [Abst. from abst. in *Rev. appl. Ent.* Ser. B. **38.** 167. (1950.)] **149**

Examination of hair, skin scrapings and crusts from cattle in the canton of Vaud, Switzerland, revealed the presence of the mange mites, *Sarcoptes bubulus, scabiei* (recorded in Switzerland for the first time in 1945 and since found in nine cantons in the west and north), *Chorioptes bovis*, which was fairly frequent, and *Demodex bovis*, and the lice *Haematopinus eurysternus, Linognathus vituli, Solenoptes capillatus*, and *Damalinia* (*Trichodectes*) *bovis*. Their local distribution is shown on a map.

See also absts. **74** (*Anopheles culicifacies* a carrier of trypanosomes); **75** (tsetse flies); **144** (parasitology in Portuguese Guinea); **170** (mosquito-borne myxomatosis); **285** (report, Gt. Britain); **286** (report, India); **288** (report, Kenya); **289** (report, East Africa); **290** (report, Basutoland); **291** (report, Uganda Protectorate).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

Mapes, C. R. (1951.) **A study of** *Dicrocoelium dendriticum* **(Rudolphi, 1819) Looss, 1899 (Trematoda: *Dicrocoeliidae*) and *Dicrocoelium* infection.**—*Thesis. Cornell.* pp. 179. **150**

A comprehensive review of the literature on the lancet fluke, as well as the results of a two year intensive investigation in the laboratory and in the field. Only 223 references are cited, but M. consulted between 500 and 600 references.

The following fields are covered: 1. Taxonomy, which includes a key to the ten known species of *Dicrocoelium*. 2. Geographical distribution. 3. Life cycle investigations, including a study of the definitive and intermediate hosts of the parasite. Two new definitive hosts, the common woodchuck and the white tailed deer, are reported. A new intermediate host, *Cionella lubrica*, a small terrestrial snail, is also reported. 4. The factors involved in the epidemiology of *Dicrocoelium* infection are covered. 5. The symptomatology, and gross and histologic pathology are summarized. 6. Therapy using terramycin, aureomycin, caricide, and diphenthane 70 were of slight value only.

There are excellent illustrations.

—H. L. Gilman.

Kendall, S. B. & McCullough, F. S. (1951.) **The emergence of the cercariae of *Fasciola hepatica* from the snail *Limnaea truncatula*.** *J. Helminth.* **25.** 77-92. [Authors' summary modified.] **151**

Observations on *Fasciola hepatica* in *Lim-*

naea truncatula under laboratory conditions showed tht the cercariae did not emerge at temperatures below 9°C. Above 9°C. emergence proceeded indiscriminately up to the limit of experimental observation (26°C.). Emergence occurred in the light or in darkness, but changes in the hydrogen-ion concentration of the water containing the snails (within the range 5·5 to 8·5) had no effect. There was some evidence that an increase of carbon dioxide in the water slowed but did not inhibit emergence, but depletion of oxygen had no apparent effect.

In the laboratory, emergence could be induced by removing snails from dry habitats and immersing them in water or by removing snails from watery habitats and placing them in fresh water. The exact physical or chemical factors acting as a stimulus under such conditions were not determined.

Observation suggests that the emergence of the cercariae is largely passive and that the parasites are expelled from the body cavity of the snail as a result of unusual activity of the mantle causing increased pressure on the terminal part of the perivisceral space. In the field temporary flooding of the habitat of the snail leads to circumstances favourable both for the emergence of cercariae and for their encystment under conditions likely to favour transmission to the definitive host.

SZAFLARSKI, J. & NAWROCKI, J. (1951.) Zastosowanie frakcji wielocukrowej i białkowej przy diagnostyce motylicy u owiec. **[Polysaccharides and protein fractions in the diagnosis of fascioliasis in sheep.]**—*Med. weteryn.* **7.** 16-19. [English and Russian summaries.] **152**

The authors carried out intradermopalpebral tests on sheep with suspected *Fasciola hepatica* infestation, using a polysaccharide fraction prepared from the dried body of the fluke. The intensity of the reaction depended, not on the number of flukes present, but on the duration of infection—the longer standing the infection, the less marked was the allergic reaction.—J. R. MITCHELL.

CORT, W. W. (1950.) **Studies on schistosome dermatitis. XI. Status of knowledge after more than twenty years.**—*Amer. J. Hyg.* **52.** 251-307. **153**

This summary lists all the species of schistosome cercariae implicated as causing dermatitis and describes their different morphological and behaviour characteristics. There is also a section on the pathology, immunology, and clinical course of schistosome dermatitis, emphasizing its interpretation as a sensitization phenomenon.

The geographical distribution of the disease as at present known is given, including one British case. There is a large section on epidemiology embracing snail life cycles, behaviour of cercariae, definitive hosts, and human habits. Copper sulphate is the best molluscicide.—G. M. URQUHART.

OMER-COOPER, J. (1949.) **Does destruction of water insects cause increase of trematode disease?**—*Entomologist's Monthly Mag.* **85.** June 27th. 157-159. [Abst. in *Trop. Dis. Bull.* **47.** 476. (1950), copied *verbatim.*] **154**

This article contains a warning to those who indiscriminately destroy the insect life of fresh waters by the use of D.D.T., oil and other noxious substances. When on a visit to Zululand to obtain data from the experiment of killing tsetse flies by means of aeroplane spraying with smokes and sprays of D.D.T., the author noticed the complete absence of insect life, such as beetles, mayfly and dragonfly nymphs, in many of the pools in the game reserve which had been sprayed from the air, but these contained surprisingly large numbers of aquatic mollusca. Conversely, in waters well supplied with insect life, there was no excess of snails. The inference that the increase in the numbers of snails is due to the destruction of their natural enemies, such as birds and insects, seems to be well founded and it is suggested that this might well lead to an increase in the incidence of trematode infections, not only in birds and animals, but also in man, in regions where bilharziasis is prevalent.

GRIFFITHS, R. B. (1950.) **A review of the incidence of *Cysticercus bovis* in cattle in Great Britain, together with a consideration of some aspects of *Taenia saginata* infection in man.**—*Ann. trop. Med. Parasit.* **44.** 357-360. **155**

The paper reviews the literature on the incidence of *C. bovis* in cattle, and *T. saginata* in man. The results of observations on the incidence of *C. bovis* at the Stanley Abattoir, Liverpool, are also included. There was evidence of a considerable increase in the number of reported cases of *C. bovis* throughout the British Isles during the previous four years. Published figures from abattoirs indicated that in 1948, 0·03–1·2% of the cattle was affected and 4·2–7·29% in 1949. In Liverpool in 1949, 503 out of 26,439 slaughtered were affected. Improved techniques in meat inspection may be responsible for the increases recorded.

There is no detailed information on the distribution of *C. bovis* in Great Britain, but there is evidence that it is widespread. There are few records as to the recent incidence of *T. saginata* infection in man. One report suggests an increase, another states that no increase has been observed. The majority of those affected were women, possibly because the cysticerci adhere to the hands when handling meat in the kitchen.—D. W. Jolly.

Dias, V. S. (1950.) Nótulas parasitológicas. IV. Cisticercoses pouco frequentes. [**Cysticercosis in a dog and in an ox in Angola.**]—*Pecuária.* **2.** pp. 53-59. **156**

D. found several examples of *Cysticercus cellulosae* in the brain of a dog, while carrying out a routine examination for rabies. He included a note on *Cysticercus tenuicollis* in the cerebrum of an ox slaughtered at an abattoir.
—I. W. Jennings.

Lopez-Neyra, C. R. (1951.) Un capitulo de la lucha antiequinococosica. Manera de evidenciar los perros vectores de equinococosis y su distinción de otras verminosis. [*Echinococcus granulosus* **infection in dogs and its differentiation from other helminths.**]—*Bol. Inf. Col. Vet. Esp. Supl. cient.* **5.** 1-19. **157**

A general account of the factors involved in the control of echinococcus disease and of the stages of the life history involved. Details are given of worm eggs that occur in dogs and require to be differentiated from the eggs of *E. granulosus*.—Anita M. Mandl.

Seddon, H. R. (1950.) **Diseases of domestic animals in Australia. Part I. Helminth infestations.** pp. 223. Department of Health, Australia. Service publication. (Division of Veterinary Hygiene) No. 5. **158**

This is the first of a series of publications designed to collect information on diseases of domestic animals in Australia. The work springs from recommendations by the Biennial Veterinary Conference of principal veterinary officers of Australian Commonwealth and State departments on a reference from the Australian Agricultural Council.

The aim of Part 1 (helminth diseases) is to assemble information on the parasites which occur in Australia, including their geographical distribution, the circumstances under which they cause disease, any particular features of the parasite or disease in Australia, the effects produced and control measures.

The publication is a comprehensive compilation of information supported by statistical data on the incidence of parasitic diseases. There are a number of maps showing the geographical distribution of the more important helminthiases in Australia. These maps should be examined along with the map which shows the distribution of sheep in Australia; otherwise the limits of occurrence of some helminthiases appear very abrupt.

There are some illustrations of molluscs which act as intermediate hosts of trematodes, of clinical cases of fascioliasis and some other helminthiases, of lesions and of automatic drenching apparatus.

The geographical distribution and seasonal incidence of haemonchosis are considered in relationship to climatographs which show the interaction of rainfall and temperature in the regions concerned.—H. McL. Gordon.

Legler, F. (1950.) Zur Frage der Infiltrationsweite von Ascarideneiern im Erdboden bei Abwasserversickerung. [**Ascarid eggs in soil and drainage waters.**]—*Zbl. Bakt. I. (Orig.)* **155.** 294-299. Proc. 3rd Convention of German Hygienists and Microbiologists, 6th-9th Sept., 1949. Frankfurt. Proceedings. **159**

A method is described for the detection of ascarid eggs in soil and water, with and without the influence of atmospheric pressure. A 2·5 cm. layer of humus held back practically all *Ascaris* eggs; none passed a 6 cm. layer; none passed an 8 cm. layer of fine sand subjected to excess pressure. Other results, using sand of known dimensions are given in tabular form.—M. L. Clarke.

Laurence, G. B., Groenewald, J. W., Quin, J. I., Clark, R., Ortlepp, R. J. & Bosman, S. W. (1951.) **The influence of nutritional level on verminosis in Merino lambs.**—*Onderstepoort J. vet. Res.* **25.** 121-132. **160**

Young lambs of 7–8 months succumbed to acute verminosis (cause of death was pulmonary oedema) when dosed with a mass mixed culture of *Haemonchus contortus* and *Oesophagostomum columbianum* when they were on a high or low level of nutrition. Lambs, 10–11 months old, became chronically affected and the low level of nutrition caused greater infestation than the higher level. By adding 300 g. of maize daily to their diet, the infested sheep were improved in body weight, appetite for roughage, haemoglobin level, fleece weight and wool fibre thickness; in these respects they even exceeded sheep which were not infested which were not receiving the extra maize. Phenothiazine was found to be superior as a vermicide

to tetrachlorethylene and to copper tartrate and copper arsenate mixture.—R. MARSHALL.

ENIGK, K. (1951.) Die Pathogenese der thrombotisch-embolischen Kolik des Pferdes. **[Pathogenesis of embolic and thrombotic colic in the horse.]**—*Mh. prakt. Tierheilk.* **3.** 65-74. 161

The migration of *Strongylus vulgaris* fourth stage larvae in the intestinal arteries, its fixation on the endothelial lining with consequent thrombosis, invasion of the media and adventitial layers of the vessel, and reparative process of the tissues are described. The severity of thrombosis is partly dependent on the clotting potentialities of blood. The impaired blood supply of the intestinal wall causes attacks of colic; the main changes occur in the small arteries of the large intestine. Haemorrhagic infarcts also occur in the small intestine and may cause death in some cases. Exposure to sun rays increases the incidence of thrombosis in affected horses.—E. VAZQUEZ-LOPEZ.

ROMAN, E. (1949.) Morphologie comparée de l'appareil reproducteur chez les nématodes Trichuroïdae. **[Comparative morphology of the reproductive system in trichurids.]**—*C.R. Acad. Sci., Paris.* **229.** 1368-1370. 162

The genital apparatus of *Trichuris, Capillaria, Trichinella* and *Trichosomoides* is described and R. suggests that only two families be recognized *viz*: Trichuroidae and Trichinellidae. —JAS. G. O'SULLIVAN.

SPRENT, J. F. A. (1951.) **On the toxic and allergic manifestations caused by the tissues and fluids of *Ascaris*. III. Hypersensitivity through infection in the guinea pig.**—*J. infect. Dis.* **88.** 168-177. [Author's summary modified.] 163

G. pigs infested with the larvae of *Ascaris lumbricoides* from pigs exhibited anaphylactic shock when injected intravenously with materials obtained from whole adult ascaris, isolated adult tissues, adult metabolic products, larval tissues and larval metabolic products. A similar effect was produced by whole adult ascaris, isolated adult tissues and adult metabolic products, after treatment with trichloracetic acid.

Two chemical fractions active in producing anaphylaxis were obtained from deproteinized whole ascaris tissues. One was able to sensitize g. pigs, was insoluble in alcohol and was unaffected in its effect by phosphotungstic acid. A similar separation was effected by saturation of deproteinized ascaris tissues with ammonium sulphate.

In tests using decreasing doses of ascaris eggs hypersensitivity resulted from a dose of 150 eggs.

Immunological relationships were established by cross-sensitization between adult worm tissues, larval tissues and adult metabolic products.

Ascaris-infested g. pigs manifested anaphylactic shock when injected intravenously with extracts prepared from *Ascaris columnaris, Toxascaris leonina* and *Physaloptera maxillaris*, but not by extracts prepared from *Trichinella spiralis*, three cestodes and a trematode.

G. pigs sensitized with whole ascaris and with ascaris polysaccharide exhibited a similar cross-sensitization towards other helminth extracts to that exhibited by ascaris infected g. pigs. No sensitization towards extracts of g. pig kidney or human group A erythrocytes was manifested.

G. pigs infested with *T. spiralis* developed anaphylactic shock when injected with whole ascaris tissues, deproteinized ascaris tissues, ascaris polysaccharide and by ascaris tissue extracts from which both proteins and polysaccharide had been removed.

LINDQUIST, W. D. (1950.) **Some abnormal host relationships of a rat nematode, *Nippostrongylus muris*.**—*Amer. J. Hyg.* **52.** 22-41. 164

Nippostrongylus infections were studied in three abnormal hosts, the cotton rat, g. pig, and golden hamster. The histopathology of the skin and lungs were studied. In general, there was an intense cellular reaction followed by fibrous nodulation around the larvae in these abnormal hosts. In the normal host—the laboratory rat —there is merely a mild transient cellular reaction. No evidence of antibodies nor of "precipitate-like" masses around the trapped larvae was observed.—G. M. URQUHART.

LAZARUS, M. & ROGERS, W. P. (1951.) **The mode of action of phenothiazine as an anthelmintic. The uptake of 35S labelled phenothiazine by the tissues of nematode parasites and their hosts.**—*Aust. J. sci. Res.* Sect. B. **4.** 163-179. 165

The uptake of phenothiazine by *Nippostrongylus muris* and *Ascaridia galli in vivo* was about five times as fast as *in vitro*. In both parasites the drug reached a level of about 1 mg. per g. dry weight 60 min. after dosage of the host animals. Thereafter, the phenothiazine content determined in mg. per g. dry weight rose steadily to a level of about 1·5–2·5 which was maintained for several hours. The uptake of the drug by the parasites was 5–10 times

greater than that of the mucosa of the small intestine of the host animals.

The amounts of phenothiazine found in *A. galli* expelled from the host by the action of the drug varied from 1·6 to 3·3; parasites that had survived treatment contained 1·1–2·1. Although the phenothiazine content of *N. muris* sometimes rose above 2·5 this parasite was not obviously affected by the drug. Both *A. galli* and *N. muris* exposed to phenothiazine *in vivo* retained a large proportion of the drug in their tissues when they were incubated in phenothiazine-free saline *in vitro*.—W. P. Rogers.

See also absts. **144** (parasitology in Portuguese Guinea); **178** (joint WHO/FAO report); **286** (report, India); **291** (report, Uganda Protectorate).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

Plummer, P. J. G. (1948.) **A survey of twenty-four tumours collected from animals slaughtered for food.**—*Canad. J. comp. Med.* **12.** 180-186. **166**

Twenty-one specimens from cattle consisted of nine lymphosarcomata, one giant cell sarcoma, one multiple adenoma of bile ducts, two round cell sarcomata, one mixed cell sarcoma, one epithelioma, one reticular cell sarcoma, one adenocarcinoma, one fibroma, one mesothelioma with adenomatous tendencies, one fibro-epithelial papilloma and one lymphatic leucaemia. The three specimens from pigs were adenoma, adenofibroma and lymphatic leucaemia.

—R. Gwatkin.

Madeira, A. C. (1949.) Adeno-carcinoma em focos múltiplos do pulmão em um ovino. **[Pulmonary adenocarcinoma in a sheep.]**—*Rev. Med. vet. Lisboa.* **44.** 95-100. **167**

A description of the tumour was given, it being considered to have been of bronchial origin. Nodules were produced by the proliferation of epithelial cells that built up ramified tubes in all directions.—F. A. Esteves.

Skipper, H. E., Bryan, C. E., Riser, W. H., Jr., Welty, M. & Stelzenmuller, A. (1948.) **Carbamates in the chemotherapy of leukemia. II. The relationship between chemical structure, leukopenic action, and acute toxicity of a group of urethan derivatives.**—*J. Nat. Cancer Inst.* **9.** 77-88. [Authors' summary slightly modified.] **168**

Toxicologic and hematologic studies were carried out on a series of carbamates consisting of 27 compounds closely related to urethan.

It was found that increasing the carbon chain of the ester group (from methyl through butyl) or substitution at the nitrogen position increased the toxicity of the resulting compound. Substitution of sulphur for the carbonyl oxygen increased the toxicity of the parent carbamates.

Three variations of the ester group of urethan were accompanied by lessening or negation of the leukopenic action of the molecule. A number of N-substituted carbamates with pronounced leukopenic action at non-lethal doses were uncovered: ethyl N,N-dibutylcarbamate; ethyl N,N-dipropylcarbamate; ethyl N,N-bis-(β-chloroethyl) carbamate, ethyl N-methylcarbamate; N-carbethoxymorpholine; ethyl N-phenylcarbamate; ethyl N-hydroxyethylcarbamate; ethyl N-n-propylcarbamate; ethyl N-phenylthioncarbamate; ethyl N-ethylthioncarbamate.

Potassium cyanate was not found to be leukopenic under the conditions of assay.

Ethyl carbamate (urethan) was the only one of the series studied which caused a statistically significant reversal of the differential leukocyte picture at 2 days after injection. However, ethyl N-phenylcarbamate and N-carbethoxymorpholine tended in the direction of early preferential lymphocyte depression.

Dutra, F. R., Largent, E. J. & Roth, J. L. (1951.) **Osteogenic sarcoma after inhalation of beryllium oxide.**—*Arch. Path.* **51.** 473-479. [Authors' summary copied *verbatim.*] **169**

A rabbit that had been exposed repeatedly to an atmosphere containing beryllium oxide died of osteogenic sarcoma 17½ months after the last day of exposure. The primary tumor was in the left pubis, and there were widespread visceral metastases.

Similar tumors are readily produced by intravenous injections of poorly soluble compounds of beryllium. Since such tumors have not been observed as a spontaneous condition in our rabbits, it is believed that this sarcoma resulted from the influence of the beryllium compound that was inhaled by this animal.

A comparison of the concentrations of beryllium in normal bone of the rabbit in which the tumor developed and in patients who died of berylliosis forms the basis for concluding that osteogenic sarcomas may eventually develop in some persons who have inhaled poorly soluble compounds of beryllium.

Ratcliffe, F. N. & Fennessy, B. V. (1951.) **Mosquito-borne myxomatosis.**—*Aust. J. Sci.* **13.** 103-105. 170

The spread of myxomatosis amongst wild rabbits subsequent to the experimental release of the disease is discussed. The disease was considered to be transmitted by mosquitoes. The sudden widespread distribution of the disease indicated an unsuspected motility of the mosquito population. It is believed that the first "jump" made by the disease was approximately 13 miles to the River Murray and from this point it spread up and down the river. To the north of the River Murray, myxomatosis was found on the Lachlan River and the Murrumbidgee River. The disease tended to be confined, sometimes sharply, to river flats and frontage country. Insufficient information is available to assess fully the value of the disease in the control of the rabbit problem but it will almost certainly be of value on river frontage country. Present research is concentrated on studying the progress of the disease at selected points covering a variety of environmental conditions.—D. F. Stewart.

Davis, O. S., Andrews, F. N. & Doyle, L. P. (1950.) **Studies in avian leucosis. V. An investigation of the possible relationship of sex hormones to visceral lymphomatosis.**—*Amer. J. vet. Res.* **11.** 428-436. [For previous parts, see *V.B.* **17.** 1572, **19.** 304 and **20.** 2027. 171

Two experiments designed to assess the influence of sex hormones on the incidence of visceral lymphomatosis are described. In the first experiment 300 birds were inoculated with infective material from various organs and 130 controls were kept. A further 200 birds received oestrogens or androgens near the time of experimental inoculation. A high death rate from intercurrent disease rendered the figures of disease incidence doubtful, but hormone treatment did appear to shorten the incubation period. In the second experiment 360 out of 700 birds received hormones. The infecting material was highly virulent and the incidence of visceral lymphomatosis was high so that group differences were slight and results are difficult to interpret.

It is apparent that visceral lymphomatosis was transmitted as a separate entity distinct from other forms of avian leucosis.

—K. G. Towers.

Oakberg, E. & Lucas, A. M. (1949.) **Variations in body weight and organ: body-weight ratios of inbred lines of white leghorn chickens in relation to mortality, especially from lymphomatosis.**—*Growth.* **13.** 319-337. [Abst. in *Biol. Abstr.* Sect. F. **24.** No. 7. p. 17. (1950), slightly modified.] 172

Body, liver, pancreas, and spleen weights were taken for 380 normal 600-day-old hens representing 13 inbred lines. Comparison of organ weights and organ: body-weight ratios indicated that genetically determined growth factors could be divided into those which affect the organism as a whole, those which are specific for liver and pancreas, and those which are specific for the spleen. Variations in incidence of deaths from lymphomatosis and from "other causes" was great between lines, and in some cases between families within lines. In eight lines a correlation of incidence of lymphomatosis mortality and "other deaths" was demonstrated; in three lines this relationship was not observed. Positive correlations of incidence of mortality from lymphomatosis with the ratios of liver and pancreas to body weight were interpreted as due to common factors which result both in large pancreas and liver and in susceptibility to lymphomatosis.

NUTRITIONAL AND METABOLIC DISORDERS

Sherman, H. C. [Mitchell Professor Emeritus of Chemistry Columbia University.] (1948.) **Calcium and phosphorus in foods and nutrition.** pp. vi+176. New York: Columbia University Press. London: Geoffrey Cumberlege. $3.00 (15/-). 173

In this book an account is given of the chemical forms of Ca and P occurring in the body and of the role played by them in various metabolic processes. Recent and current research on the subject is critically reviewed and the quantitative needs for both minerals is discussed from the aspects of minimum requirement and optimal allowance. A chapter is devoted to foods as sources of Ca and P in the diet. The writing is concise and lucid and there is an admirably selected bibliography of over 500 references. Research workers and scientific advisers in nutrition will find this book of great value.—E. M. Cruickshank.

Mason, K. E. & Hartsough, G. R. (1951.) **"Steatitis" or "Yellow Fat" in mink, and its relation to dietary fats and inadequacy of vitamin E.**—*J. Amer. vet. med. Ass.* **119.** 72-75. [Authors' summary modified.] 174

Comparisons between gross and histological findings in steatitis of mink, and those in laboratory rats fed rations high in unsaturated fats and low in vitamin E, indicate that the latter factors play an important role in the aetiology of the disorder in mink.

SEEKLES, L. (1951.) **A note on the treatment of ketosis in milk cows with ammonium lactate.**—*Vet. Rec.* **63.** 494. [Author's summary copied *verbatim.*] **175**

Since 1942 ammonium lactate therapy in ketosis in the milk cow has been practised in numerous cases in the Netherlands and as a rule with good results. In cases of impairment of liver function a supply of lactate to the liver would raise the glycogen content and in this way improve its function. Moreover, the drug has a weakly laxative action, so it acts favourably in cases of ketosis showing constipation. Ammonium lactate is administered by mouth twice a day, each time in a quantity of about 120 g. (4 oz.) of commercial ammonium lactate at a strength of about 80 to 85%. The drug has to be diluted with about a pint of water prior to administration or it may be mixed with other materials and pressed to cakes. In persistent cases of ketosis the administration of ammonium lactate should be continued for more than five days. Checking the presence of acetone in the urine after six days (*e.g.*, the Legal or Rothera test) is advisable.

More particularly in cases of alimentary ketosis, *e.g.* when grass silage containing much butyric acid and a low content of lactic acid was used as a fodder, ammonium lactate therapy gave favourable results.

JOHNSON, R. B. (1951.) **The relative rates of absorption of the volatile acids from the rumen and their relationship to ketosis.**—*Cornell Vet.* **41.** 115-121. [Author's summary copied *verbatim.*] **176**

The rate of absorption of volatile acids from the rumen is shown to be in the order of butyric > propionic > acetic.

Various possible causes of ketosis in ruminants are suggested.

BAILEY, J. W. (1949.) **Paralysis in rabbits.**—*J. Amer. vet. med. Ass.* **115.** 264. **177**

B. recorded 18 cases of paralysis in rabbits caused by a diet of low grade hay and water. Each rabbit was given three drops of a solution containing iron, cobalt and copper *per os* and 5 ml. of thiamine hydrochloride intramuscularly. Fifteen were cured, but three in advanced stages of illness died.—E.M.J.

See also absts. **160** (nutrition and verminosis in lambs); **213** (action of oestradiol on calcium metabolism); **214** (bone marrow metabolism); **264** (feeding and management of breeding bulls); **266** (weight of reproductive organs in dairy cows in relation to feeding); **286** (report, India).

DISEASES, GENERAL

ANON. (1951.) **United Nations. Joint WHO/FAO expert group on zoonoses. Bovine tuberculosis—Q fever—anthrax—psittacosis—hydatidosis. Report of the first session, Geneva, 11-16 December, 1950.**—*World Hlth. Org. techn. Rep. Ser.* No. 40. pp. 47. **178**

[The word 'zoonoses' is here used to mean infective diseases common to animals and man. It does not appear to be a convenient term. —Ed. *V.B.*] This article gives a list of such diseases, general and well known details of certain of them being outlined.

—JAS. G. O'SULLIVAN.

STAMP, J. T. & WATT, J. A. (1948.) **Disease survey of Sourhope Farm.**—*Misc. publ. Edinb. & E. Scot. Coll. Agric.* No. 25. pp. 1-5. **179**

A report on the problems of sheep farming in the Cheviot Hills. The main diseases encountered were helminthiasis, abortion and sterility. There was no evidence of 'pine' caused by cobalt deficiency.—ROY MACK.

I. MENSA, A. [Trans. into Spanish by: Farreras, P.] (1950.) Patologia quirurgica veterinaria. Tomo I. Cirugía general y sistemática. **[Veterinary surgical pathology. Vol. I. General and systematic surgery.]** pp. xix+651. Barcelona, Madrid, Buenos Aires, Rio de Janeiro: Editorial Labor, S.A. 200 pesetas. **180**

II. MENSA, A. [Trans. into Spanish by: Farreras, P.] (1949.) Patologia quirurgica veterinaria. Tomo II. Cirugía especial y regional. **[Veterinary surgical pathology. Vol. II. Special and regional surgery.]** pp. xxvii+1788. Barcelona, Madrid, Buenos Aires, Rio de Janeiro: Editorial Labor, S.A. **181**

I. & II. This is a Spanish translation of the original second edition in Italian, already reviewed in this *Bulletin* [*V.B.* **19.** 384].—E.G.

ARTIOLI, D. (1949.) Arteriosclerosi primitiva nei reni di un cavallo. **[Primary arteriosclerosis in the kidneys of a horse.]**—*Nuova Vet.* **25.** 122-130. **182**

The author describes a case of primary renal arteriosclerosis in a well-nourished 17–18-

year-old horse. Macroscopically, the shape, colour and volume of the kidneys were almost normal, but there was a slight increase in the consistency of the tissues. Histological examination revealed changes characteristic of this lesion: considerable increase of the chromotrophic substance, hyaline degeneration, elastic hyperplasia in the arteries, hyalinization of the external coat of Bowman's capsule. No inflammatory process, either acute or chronic, was noted in the renal parenchyma.—J. K. GAN.

STÜNZI, H. & LEEMANN, W. (1950.) Reticulose beim Pferd. [**Reticulosis in a horse.**—*Tierärztl. Umsch.* **5.** 117-119. **183**

A fatal case is reported of a 12-year-old gelding with marked pruritus, generalized eczema and lymphadenitis. Histologically there was extensive proliferation and what the authors speak of as desmolysis of reticulum cells, and formation of loose granulation tissue. The aetiology of this condition is obscure.

—W. R. BETT.

OBEL, N. (1948.) **Studies on the histopathology of acute laminitis.** pp. 95. Uppsala: Almqvist & Wiksells Boktryckeri AB. [In English.] **184**

The author discussed the literature relevant to laminitis and his own histopathological studies of the disease. There is a disturbance of the process of cornification in the various parts of the hoof and also in the chestnut consisting of a disappearance of the "keratogenic" structure characteristic of the inner part of the zone of cornification in the various epidermal tissues. The sinking of the pedal bone is brought about by these changes in the horn of the hoof. The weight of the body causes a stretching of the secondary epithelial laminae and a dislocation of the os pedis. In the more severe cases the deformation of the laminae is complicated by a partial necrosis which may lead to a separation of the horny and the sensitive laminae. He considered that the changes in the laminar corium are secondary to the changes in the epidermal laminae.

The last chapter (viii) comprises a discussion and many photomicrographs are included at the end of the monograph.—E.M.J.

MAAS, A. (1949.) Weitere Untersuchungen zur Feststellung der Ursache des enzootischen Herztodes der Schweine. [**Investigation of the cause of fatal syncope of pigs.**]—*Mh. Vet.-Med.* **3.** 181-188. **185**

Fatal syncope of pigs occurs mainly in Eastern Germany and to a lesser extent in Western Germany. In some herds a more or less pronounced inappetence and fever (42°C.) of one or two days' duration was observed 2–4 weeks before the onset of the disease. On several farms fowls that had access to the pig food died suddenly without symptoms and myocarditis was demonstrated P.M.

The lesions of fatal syncope are passive hyperaemia of the intestinal mucosa, haemorrhagic intestinal catarrh, congestion of the liver, hyalinization of the skeletal muscle and serofibrinous peritonitis. The heart muscle does not necessarily undergo changes and it is uncertain whether the accompanying thyrotoxicosis is of aetiological significance.

The disease is apparently not hereditary, not caused by vitamin A or B deficiency, nor zinc poisoning. Attempts to transmit the disease by artificial means failed, but healthy pigs became infected and usually died about three weeks after introduction to affected premises. Others introduced when mortality in the herd had reached its peak, or soon after the peak, often escaped infection.

—MARJORIE LATZKE.

NEUMANN-KLEINPAUL, K. & SANDER, W. (1951.) Elektrokardiographische Untersuchungen in Herztodbeständen. [**Electrocardiography in fatal syncope of pigs.**]—*Mh. Vet.-med.* **6.** 169-175 & 186-191. **186**

The normal electrocardiogram of the pig with three different leads is described in detail, with time relations, outline and significance of waves in the curve. The authors have studied 29 animals free from the disease as clinically healthy controls and 129 pigs suspected or affected. Twenty-six of these were examined two or three times at 4–10 day intervals. Most of the cases were considered within the "incubation period", after notification of cases of fatal syncope. The results are classified as: (a) ECG of clinically healthy pigs (not controls), (b) ECG of pigs with symptoms of the disease showing some evidence of damaged myocardium, and (c) ECG of pigs that died some time after the study. In this group it is remarkable to see in some cases a normal curve even three days before the death of the animal. The findings in this group are signs of deficiency in oxygen supply, disturbances of coronary vessels or infarct. The authors conclude that changes in the thyroid gland and in the sympathetic nervous system are the basis of the cardiac changes and sudden death in this condition.—E. VAZQUEZ-LOPEZ.

BALDWIN, D., TAYLOR, C. B. & HASS, G. M. (1950.) **A comparison of arteriosclerotic lesions produced in young and in old rabbits**

by freezing the aorta.—*Arch. Path.* **50.** 122-131. [Authors' summary slightly modified.] **187**

Local hypothermal arteriosclerotic lesions were produced in the aortas of 10 senile rabbits. The sequences of degeneration and regeneration of the aortic wall were studied microscopically over a period of six months. The findings were compared with those obtained in a previous study of aortic lesions produced in young rabbits [*V.B.* **21.** 1467]. Two principal differences were encountered. First, the senescent rabbits had limited proliferation of intima at sites of lesions, so that the regeneration of a new aortic wall was quantitatively less than that found within the framework of the proliferating intima in young rabbits. Qualitatively the regenerative reactions were similar. Second, the aortic adventitial connective tissue of senile rabbits frequently had cartilage or bone formation. This heteroplastic reaction was only rarely found in young animals and seemed to bear no established relation to anything other than the age of the animals in which the hypothermal lesion was produced.

Buck, R. C. (1951.) **Minerals of normal and atherosclerotic aortas.**—*Arch. Path.* **51.** 319-328. [Author's summary copied *verbatim.*] **188**

The concentrations of nonlipid phosphorus, calcium, magnesium, water and fat-free dry residue were determined in a series of normal and atherosclerotic human aortas. A statistical analysis of the results was carried out in relation to aging and to the degree of atherosclerosis.

In apparently normal aortas the result of aging, apart from atherosclerosis, was an increased concentration of each of the minerals. The rate of increase was, in each case, logarithmic. Although the concentration of each of the minerals in atherosclerotic portions of aorta was significantly greater than that in normal portions, the increase associated with atherosclerosis was small in comparison with that associated with aging. The concentration of water was significantly decreased in relation to the degree of atherosclerosis, while that of the fat-free dry residue was unchanged.

The relative proportion in which the minerals are deposited was found to be constant, suggesting the possibility that they are in chemical combination. The ratio of calcium to phosphorus was similar to that found in bone.

Harrington, W. J., Minnich, V., Hollingsworth, J. W. & Moore, C. V. (1951.) **Demonstration of a thrombocytopenic factor in the blood of patients with thrombocytopenic purpura.**—*J. Lab. clin. Med.* **38.** 1-10. [Authors' summary copied *verbatim.*] **189**

A thrombocytopenic factor has been demonstrated in the whole blood and plasma from eight of ten patients with idiopathic thrombocytopenic purpura and from one of three subjects with secondary thrombocytopenia. Administration of 500 c.c. of citrated whole blood or its plasma equivalent from these nine patients caused a prompt, and often dramatic decrease in the platelet counts of nonthrombocytopenic recipients. The thrombocytopenic effect persisted for five to seven days and, when severe, was associated with a prolonged bleeding time and decreased prothrombin consumption. The factor was stable for at least nine days at 5°C, and for at least eight days at 25°C. In the one plasma fractionation that has so far been done, the thrombocytopenic factor was found in the globulin fraction. Two patients who were demonstrated to have the platelet-reducing factor prior to splenectomy still had the factor present after platelet counts had returned to normal following removal of the spleen.

Innes, J. R. M. (1951.) **Myopathies in animals. A record of some cases including progressive muscular dystrophy (pseudo-hypertrophic) (dog), "weisses Fleisch" (lamb), neuropathic muscular atrophy (sheep) and lymphocytic/histiocytic myositis, neuritis, radiculitis (dog).**—*Brit. vet. J.* **107.** 131-143. [Author's summary modified.] **190**

A review of the literature on the comparative pathology of myopathies is given. Cases of spontaneous muscular dystrophy in a rabbit; true progressive muscular dystrophy (pseudo-hypertrophic type) in a dog; neuropathic atrophy in a sheep and "weisses Fleisch" in a lamb; and lymphocytic/histiocytic myositis, neuritis radiculitis and myelitis in a dog are all described and illustrated.

In domesticated animals the causal relationship of vitamin E to spontaneous muscular dystrophies is still not elucidated. There appears to be an analogy with Myotonia congenita (Thomsen's disease) of man in the disorder of goats described in the U.S.A.; there are no recorded diseases parallel to Dystrophia myotonica, Myasthenia gravis, and amyotrophic lateral sclerosis of man.

The occurrence of a lymphocytic/histiocytic myositis and radiculitis in a dog might suggest the possibility of the existence of a hitherto unrecognized micro-organismal agent with a predilection for attack on canine muscle;

it is not known to what extent canine neurotropic viruses attack peripheral nerves or muscle.

LONGLEY, E. O. (1949.) **The psychologically aberrant case.** [Correspondence.]—*Vet. Rec.* **61.** 769. **191**

L. wrote in continuation of earlier correspondence in which attention had been drawn to the importance of the study of psychological reactions in animals; he gave instances of behaviour of domestic and wild animals which might be interpreted as being resultant from psychological disorder.—A. N. WORDEN.

POISONS AND POISONING

PIMENTA DE MELLO, R. (1951.) **Effect of light on urinary coproporphyrin excretion in lead-poisoned rabbits.**—*Proc. Soc. exp. Biol., N.Y.* **76.** 823-825. [Author's summary copied *verbatim.*] **192**

Light exposure increases the urinary coproporphyrin excretion in rabbits with lead poisoning. The increase is especially marked after ultra-violet radiation. Subsequent radiation, however, fails to cause a renewed rise or is followed by only a small increase. Whether the increase following the light is due to mobilization of preformed porphyrin, or to increased porphyrin formation, has not been determined.

DELANOE, E. (1950.) Darmous naturel vu au lieu même de l'émergence des mines de phosphates (Kouribga.) **[Fluorine poisoning in men and in cattle in an area close to phosphate mines.]**—*Maroc méd.* **29.** 1116-1121. **193**

An account was given of fluorine poisoning caused by fumes (presumably with a high fluorine content) escaping from a factory chimney during the preparation of phosphates.

—G. DAVIES.

BARKE, A. (1949.) Zur Toxizität des Kontaktinsektizids Hexachlorcyclohexan. **[Toxicity of hexachlorcyclohexane (benzene hexachloride).]**—*Mh. prakt. Tierheilk.* **1.** 213-221. **194**

B. presented the following data regarding the use of γ-isomer benzene hexachloride.

When administered *per os* to mice at a dose rate of 19–20 mg. dissolved in oil per 10 g. body weight, or when injected intraperitoneally at 0·5 mg. in oil or acetone per 10 g. body weight, the mice died. Freshly prepared solutions of the isomer were more toxic in effect. Mice survived mixed doses of α- and γ-isomers benzene hexachloride in oil, but, when administered separately, they died.—E. WALLICZEK.

KITSELMAN, C. H., DAHM, P. A. & BORGMANN, A. R. (1950.) **Toxicologic studies of aldrin (compound 118) on large animals.**—*Amer. J. vet. Res.* **11.** 378-381. **195**

Sheep and cattle fed on alfalfa hay sprayed with aldrin [chlorinated naphthalene] remained healthy; weight gains were normal, the milk was free from aldrin and the content of aldrin in the tissues was negligible.—R. MARSHALL.

MORELLE, P.-L.-E. (1946.) L'intoxication par le blé chez le cheval. **[Wheat poisoning in horses.]**—*Thesis, Alfort.* pp. 55. **196**

Seventeen case reports, 13 from acknowledged sources and four seen by the author himself, are given of alleged wheat poisoning in horses. The symptoms are suggestive of intestinal "auto-intoxication" and of resultant laminitis.—A. N. WORDEN.

FORENBACHER, S. (1950.) **Equisetum poisoning of horses and the vitamin B complex. I. The experimental investigations and clinical experiences.**—*Vet. Arhiv.* **20.** 464-471. [In English.] **197**

Natural and experimental cases of *Equisetum* poisoning were compared with vitamin B deficiency. Phosphorylation and carbohydrate metabolism were disturbed, with resulting hyperpotassaemia and hyperphosphataemia. Administration of dried yeast was both preventive and curative. Doses of 250–500 mg. vitamin B_1 given parenterally, were equally effective.—JOHN SEAMER.

UEDA, A., YAMAGIWA, S., KAWAKITA, Y., ENDO, M. & MATUMOTO, M. (1950.) **Etiological study on "stagger" disease in horses endemic to the Tokati area of Hokkaido, Japan.** [Treatment with thiamine.]—*Jap. J. exp. Med.* **20.** 719-727. [In English.] **198**

A disease of horses which is endemic in the Tokati district in Japan is characterized by fever, ataxia and paralysis especially of the hind limbs, muscular tremors, difficulty in deglutition and hypersensitivity to various stimuli. In severe cases there may be intense excitement. The pulse is irregular, blood pressure low and there is bradycardia with cyanosis of mucous membranes.

Attempts to isolate a virus from 13 cases were negative. Serological tests indicated that there was no relationship with Japanese B encephalitis.

Vitamin B_1 has been found to be remarkably effective in treatment.

[The authors remark that information on vitamin B_1 deficiency in horses is limited in the literature. The symptoms and the response to treatment with thiamine resemble closely those described in experimental bracken staggers in horses [*V.B.* 20. 1756]. The authors do not give any information on the feeding and management of horses in the district in which the disease occurs.]—M.C.

ANON. (1950.) Intoxications par le Thesium. [**Poisoning of cattle and sheep by** *Thesium humile*.]—*Bull. vét. Algérie.* 9. 7. 199

The observed symptoms of poisoning in cattle and sheep were described after ingestion of *Thesium humile* [*Santalaceae*], a semi-parasitic plant occurring in wheat stubble, reported to contain the alkaloid "thesin".

—G. DAVIES.

MAUBECIN, R. A. (1950.) El nabillo o mostacilla (*Sisymbrium irio* L). Nueva especie tóxica para el ganado en le provincia de Córdoba. [**Poisoning of cattle by** *Sisymbrium irio*.]—*Gac. vet., B. Aires.* 12. 15-21. 200

M. discussed cases of poisoning in cattle caused by ingestion of *S. irio* (Cruciferae), a weed of the wild mustard genus. Cattle fed exclusively on the plant died in 15–45 days depending on the age of the animal and stage of development of the plant. Details of symptoms and P.M. findings are given.

—K. J. SINCLAIR.

COOP, I. E. & BLAKLEY, R. L. (1950.) **The metabolism and toxicity of cyanides and cyanogenetic glucosides in sheep. III. The toxicity of cyanides and cyanogenetic glucosides.**—*N.Z. J. Sci. Tech.* 31. Sec. A. No. 5. pp. 44-58. [Authors' summary copied *verbatim*.] 201

The M.L.D. of free HCN for sheep is approximately 2·4 mg. HCN/kg. body weight. Starvation for 2–4 days does not significantly alter the M.L.D. The M.L.D. of free lotaustralin [a cyanogenetic glucoside] for sheep is $4{\cdot}5 \pm 0{\cdot}5$ mg. HCN/kg. Starvation for 2–4 days does not have a significant effect. Analysis of body tissues of dead sheep for HCN content is not a very reliable method of diagnosing cyanide poisoning. By repeated dosing of small amounts of HCN or lotaustralin at rapid intervals it has been shown that sheep can tolerate an hourly intake of up to 3·9 mg. HCN/kg. for several hours on end. The theory of poisoning by cyangenetic plants is reviewed in the light of the new evidence presented in Parts I, II and III of this series. The importance of rate of intake and rate of hydrolysis in the rumen is stressed. [For previous parts see *V.B.* 21. 512 & 1797.]

FILMER, J. F. (1951.) **Pathogenic photosensitization of animals in New Zealand.**—*Proc. Spec. Conf. Agric., Aust.* 1949. pp. 320-329 London: H.M. Stationery Office, 20/-. [Author's summary copied *verbatim*.] 202

At least five different plants cause simple photosensitization in New Zealand. The incidence of icterogenic photosensitization in the world is briefly summarized and some 18 different conditions are listed. The environmental factors associated with the incidence of facial eczema are described and a tentative hypothesis is advanced to explain their effects. The investigations into the etiology of facial eczema are summarized and attention is drawn to the difficulties encountered. Facial eczema, rape scald, and congenital photosensitization of Southdowns appear to have been recorded only in New Zealand, though there is no obvious reason why they should not occur in many other countries.

See also abst. 294 (book, toxicology of uranium).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

STEINMETZER, K. (1950.) Pharmakologie für Tierärzte einschliesslich Verordnungslehre. [**Pharmacology for veterinarians.**] pp viii + 346. Vienna: Urban & Schwarzenberg. DM. 18.–. 203

The author breaks away from the usual layout of books on materia medica by arranging the subject matter according to body systems, so that information on drugs for instance, having an influence on the circulation, is readily found.

Part I of the book is devoted to general pharmacology (methods of administration, excretion and so on); Part II deals with the pharmacology of the body systems; disinfectants, antiseptics, antibacterials, anthelmintics and parasiticides are included in a chapter in this section; and Part III deals with practical and forensic pharmacy.

This book is a catalogue of drugs old and fairly new and is not sufficiently dogmatic and selective. Much of the old materia medica

could have been omitted to advantage and more space devoted to modern remedies. The practitioner seeking advice has to make his own selection from the mass of information presented. Phenothiazine the most versatile of all anthelmintics is disposed of in 17 lines while others much less useful receive more attention than modern practice merits. Similarly the fact that modern chlorinated hydrocarbons such as D.D.T. and benzene hexachloride (B.H.C.) have replaced nearly all the old insecticides, has not been appreciated.

As a first edition the book has broken new ground; it should serve usefully as a foundation on which to build a modernized, more dogmatic second edition.—J. EDWARDS.

SCHERMER, J. (1951.) Ein Beitrag zur Technik der Bluttransfusion bei grossen Haustieren. **[Blood transfusion in large animals.]**—*Berl. Münch. tierärztl. Wschr.* No. 4. pp. 65-67. 204

Experience has shown that direct blood transfusion is preferable to any indirect method so far proposed. The apparatus described for this purpose consists essentially of a 100 ml. syringe fitted into a metal holder provided with a three-way stop-cock and three mouthpieces which are connected respectively by rubber tubing to a 500 ml. saline bottle and two cannulae. The apparatus is mounted on an adjustable stand which can be fixed at any convenient height. The syringe and tubes are paraffined and air is expelled from the apparatus by withdrawing saline from the bottle by means of the syringe and filling each of the tubes in turn. The donor and recipient are then placed side by side with the apparatus between them and a cannula is inserted peripherally into the jugular vein of the donor. With stop-cock suitably adjusted, the syringe is slowly filled with blood from the donor. In the mean time, the second cannula is inserted centrally into the jugular vein of the recipient, the stop-cock turned and the blood in the syringe slowly injected. By this means a litre of blood can be transfused in 3–4 min. and also glucose or other drugs can be introduced into the saline bottle and an intravenous injection given. Repeated transfusions may give rise to iso-immune reactions so cross-agglutination tests should be carried out.—J. A. NICHOLSON.

ZUNDEL, G. (1950.) Le cinchophène: pharmacodynamie et toxicité. **[Pharmacology and toxicity of cinchophen.]**—*Rec. Méd. vét.* **126.** 661-679. 205

Cinchophen, phenyl-quinoline carboxylate, has been admitted into the French Pharmaceutical Codex [but not into the corresponding English and American codices].

It has a varied action in the mammalian body: it increases the excretion of uric acid and the secretion of bile, has an analgesic action and is antipyretic.

It has been used in many diseases and has been claimed to be of value in rheumatism, gout, jaundice and in certain types of "colic". It is administered orally or by intravenous injection.

Cinchophen is a rather toxic drug. When given *per os* it tends to cause a gastric ulcer and hypersensitivity to it is relatively common.
—J. EDWARDS.

SHERMAN, W. B. (1951.) **The uses and abuses of antihistamine drugs.**—*Bull. N.Y. Acad. Sci.* **27.** 309-324. [Author's summary copied *verbatim.*] 206

The available antihistaminic drugs are all essentially similar in their action and side effects although varying both in potency and toxicity. No one drug may be said to be the best. These drugs are of value for symptomatic relief in allergic rhinitis, urticaria and serum sickness and for the control of itching. In no disease do they have a curative effect. In asthmas, their efficacy is less than that of older drugs. In the treatment of the common colds they do not alter the course of the infection but may afford some symptomatic relief. The commoner side effects are drowsiness and nausea. Long continued use occasionally leads to leukopenia or agranulocytosis. Contact dermatitis not infrequently results from their topical use. On the whole, these drugs represent a definite contribution to therapy but there is still room for newer compounds with greater potency and less toxic effects. In most of the allergic diseases, their efficacy is surpassed by that of cortisone or ACTH [adrenocorticotrophic hormone].

BRITO-BABAPULLE, L. A. P. (1951.) **An antidote (riboflavin) for D.D.T. poisoning—a record of 35 cases seen.**—*Brit. vet. J.* **107.** 106-122. 207

D.D.T. has been used very extensively in Ceylon. Thirty-four cases of poisoning in dogs and one in a calf were recorded. Motor nerve lesions were a constant feature and anaemia frequently occurred. Vitamins of the B complex and riboflavin alone in doses up to 20 mg. administered orally or parenterally were claimed to be rapidly curative.
—JOHN SEAMER.

SKELTON, F. R. & FORTIER, C. (1951.) **The influence of oral ascorbic acid administra-**

tion on the adrenal cortical response to ACTH.—*Canad. J. med. Sci.* **29.** 100-103. [Authors' abst. copied *verbatim.*] 208

The effect of orally administered ascorbic acid (as sodium ascorbate) on the adrenal cortical response to ACTH was studied in the hypophysectomized male rat. Plasma and adrenal ascorbic acid and adrenal cholesterol levels were determined three and six hours after ACTH injection. The depletion of adrenal ascorbic acid following such treatment was partially inhibited by the administration of sodium ascorbate while the decrease in cholesterol was unaffected. These results suggest that the uptake of ascorbic acid from the increased quantity available in the plasma was sufficient to partially overcome the depleting effect of ACTH.

HETZEL, B. S. & HINE, D. C. (1951.) **The effect of salicylates on the pituitary and suprarenal glands.**—*Lancet.* **261.** 94-97. [Authors' summary copied *verbatim.*] 209

Therapeutic doses of salicylates cause a significant depletion of the ascorbic-acid content of the suprarenal glands in rats, the effect being directly proportional to the dose. The response can be abolished by hypophysectomy and tends to be inhibited by preliminary treatment with suprarenal cortical hormone. It is concluded that the therapeutic effects of salicylates are mediated by the pituitary and suprarenal glands. The significance of this finding is discussed in the light of relevant clinical and experimental observations.

TEREKHOV, P. F. (1949.) **[Technique of injection into the external iliac artery of the horse.]**—*Veterinariya, Moscow.* **26.** No. 9. pp. 37-38. 210

For purposes of analgesia of the hoof and deep seated parts of the hind leg, T. recommended injections into the iliac artery. The point of injection is 2–3 cm. below the bisection of a line joining the most ventral part of the tuber coxae of the ilium to the tendon of the middle gluteus where this tendon passes over the convexity of the trochanter major of the femur. A 1·5–2 mm. diameter needle is inserted horizontally in the sagittal plane to a depth of 10–14 cm. A special guide ensures the needle lumen being kept free from clotting.

Over 60 injections were made into sick horses without any complications. P.M. examination of one horse five months after it had had ten injections into each flank in the course of one month revealed only slight proliferation near the artery, but no changes could be observed in the intima. A drawing which, however, is not clear, illustrates the position.

—F.A.A.

See also absts. **3** (sensitivity of bacteria to chemotherapeutic agents); **5** (sulphone in mastitis); **6** (nisin in mastitis); **7** (effective concentrations of penicillin); **22** and **142** (A.C.T.H. and cortisone); **23** (effect of cortisone on TB. in g. pigs); **24** (chemotherapy of intestinal TB.); **32** (sulphamerazine in fowl cholera); **47** (streptomycin and sulphadiazine in brucellosis); **52** (aureomycin in brucellosis); **53** (penicillin in brucellosis); **64** (formalin in foot rot of sheep); **66** (atabrine in histoplasmosis); **69** (aureomycin and penicillin in experimental actinomycosis); **72** (antrypol in trypanosomiasis); **73** (suramin and arsocoll); **83** (chemotherapy of theileriasis in cattle); **143** (cortisone); **145** (lice)); **147** (fly repellent); **165** (phenothiazine); **168** (chemotherapy of leucaemia); **175** (ammonium lactate in ketosis); **194** (toxicity of benzene hexachloride); **241** (adverse effect of antibiotics used in treatment of mastitis on cheese manufacture); **269** (effect of sex hormones on endometritis in dogs).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

COWDRY, E. V. [Prof. of Anatomy, The School of Medicine, Washington University, St. Louis.] (1950.) **A textbook of histology. Functional significance of cells and intercellular substances.** pp. 640. London: Henry Kimpton. 4th Edit. 60s. 211

There are three chapters by way of introduction to the author's main discussion. In the first, after a brief historical survey, the student is given some guidance in how to acquire the expected ability "to recognize microscopically the principal cells, tissues and organs of the body, to understand in an elementary way how microscopic structure is related to function" (great attention is paid to this aspect of the subject throughout the book), "to be so familiar with the normal microscopic appearances of cells, tissues and organs in different stages of functional activity and at different ages as to notice appearances due to technical errors or pathological conditions" (the penultimate chapter deals with the microscopic determination of normality), and "to find in the medical literature accounts giving the most up-to-date descriptions of microscopic structure for use when required" (there is a 20-page bibliography at the end of the book). Then follows a short survey of microscopes and of histological techniques. The second chapter is concerned with cells as vital units—their structure, their fluid environments and their individual life histories, while the third chapter discusses tissues, organs and systems.

In the rest of the book, the principal aim of which is to relate structure and function in the whole body, the real physiological unit, the histology of the various systems is described, proceeding from a consideration of the blood, as

the principal integrator which supplies the essential fluid medium and serves for transportation (the white and red blood cells and their formation are here dealt with), to a consideration of the structures serving for circulation (blood vessels, heart), for drainage into the blood (lymphatic system and special lymphatic organs), for chemical broadcasting *via* the blood (endocrine system), for the intake of material and removal of waste (alimentary tract), for oxygen intake and carbon dioxide elimination (respiratory system), for the regulation of the composition of the blood (urinary system), for information and rapid integration (nervous system, principal sense organs), for organization, support and movement (connective and muscular systems), for the perpetuation of the race (male and female reproductive systems), and for unification, protection and adjustment (skin).

Altogether, this is a stimulating account of human histology, which would perhaps be read with particular profit by the student nearing the end of the course. It is stimulating, partly on account of its lively style and interesting content, and partly also because of the numerous references, and the lists of questions at the end by which the student can test his knowledge (although he need not feel unduly discouraged if he cannot answer them all).

The print is clear, the paper good, the figures well-produced (but the caption for fig. 1 is under fig. 2, and *vice versa*), and it is surprising that there should be so many misprints (over four dozen have been noticed, of which a third appear in the index).

—E. Cotchin.

Lousse, A. (1949.) Microparasites gastro-intestinaux et métabolisme de l'azote chez les ruminants. **[The intestinal flora and metabolism of protein in ruminants.]**—*Ann. Méd. vét.* **93.** 345-368. 212

A brief survey covering some of the literature relating to the degradation of protein in feeding stuffs and the conversion of non-protein-nitrogen to protein in the rumen. The significance of protozoa and bacteria in the rumen and their value as a source of protein are discussed.—K. J. Hill.

Govaerts, J., Dallemagne, M. J. & Melon, J. (1951.) **Radiocalcium as an indicator in the study of the action of estradiol on calcium metabolism.**—*Endocrinology.* **48.** 443-452. [Authors' summary copied *verbatim.*] 213

The influence of estrogen on calcium metabolism in soft tissues and skeleton has been studied in pigeons by the use of radiocalcium. Daily estrogen injections produce an increase of calcium metabolism to a higher degree than can be observed to occur by normal hormonal secretion. The excretion of calcium is decreased by estrogen injections and at the same time the over-all retention of calcium is increased, yielding a biological half-life of calcium of about 75 days instead of 45 days in the controls. The distribution of calcium in bone was also studied by the radioautographic technic. The new medullary bone of the femur and tibia is very rich in injected radiocalcium. A comparison is made between calcium and phosphorus in bone metabolism.

Lutwak-Mann, C. (1949.) **Some aspects of bone marrow metabolism.**—*Nature, Lond.* **164.** 607-608. 214

In a study of bone marrow metabolism details were given regarding the distribution and breakdown of phosphorus compounds in long bones of rats and rabbits. The enzymes, metabolites and metals present were listed.

—G. P. Marshall.

Crawford, J. D., Osborne, M. M., Jr., Talbot, N. B., Terry, M. L. & Morrill, M. F. (1950.) **The parathyroid glands and phosphorus homeostasis.**—*J. clin. Invest.* **29.** 1448-1461. [Abst. from authors' summary.] 215

The authors discussed the relationship between the ratio of phosphorus reabsorbed by the renal tubules to phosphorus in glomerular filtrate and parathyroid gland activity. The value for the ratio is (a) approximately one after parathyroidectomy; (b) diminished by administration of parathyroid extract; (c) inversely correlated with parathyroid gland size. These findings indicate that the value of the ratio might be used as an index of parathyroid activity.

In normal individuals an increase in phosphorus intake is followed within a few hours by a fall in the value of the ratio; conversely a decrease in phosphorus intake is followed by a rise in the value of the ratio. The relative constancy of serum phosphorus concentration therefore appears to be mediated by homeostatic adjustments in parathyroid activity.

Hyperphosphataemia *per se* appears to stimulate increased parathyroid activity.

Tabarelli Netto, J. F., Ribeiro, O. F. & Ribeiro, I. F. (1948.) A propósito do índice ictérico e da bilirrubinemia do jejum, em eqüinos. **[About the icteric index and the fasting bilirubinaemia in equines.]**—*Rev.*

Fac. Med. vet. S. Paulo. 3. 187-194. [Abst. from English summary.] 216

In an attempt to establish the normal icteric index [the index of the bilirubin content of the blood in human beings as expressed by comparison of the colour of the serum with the colour of a 1 : 10,000 potassium dichromate solution. The normal range is from 4–6.] for horses by Lamounier's technique, the authors used 20 clinically normal, resting Thoroughbred racehorses kept on a well balanced diet; in these animals the index found was 0·5–8 units. In 26 similar horses in training, but given also a small green food ration, the value of the index was higher. In a group of four other fasting horses the icteric index was determined every two hours during a period of 34 hours; there was an increase in the index corresponding to the increase in fasting time.

The authors consider that the possibility of the high icteric index in Thoroughbred racehorses probably corresponds to a fasting hyperbilirubinaemia, but the component of the normal diet which is responsible is unknown.

KELSO, W. T. (1947.) **Electrocardiograms of young lambs.**—*Qd J. agric. Sci.* 4. 60-77. 217

K. described an electrocardiograph of his own design, in which the amplified wave form appears on two cathode ray tubes, one for monitoring, the other for rapid serial photography. A tachometer [an instrument to measure the rate of flow of blood] is incorporated to measure heart rates. Daily readings were taken from a series of lambs, commencing shortly after birth. The electrodes were connected in the standard combinations. Bazett's formula was used to determine the variation of K for a given QT interval and heart rate cycle. The results obtained are analysed and discussed at considerable length.—L. M. MARKSON.

SCHAUDER, W. (1951.) Die Blutgefässe des Euters der Ziege. **[Blood vessels of the udder of the goat.]**—*Tierärztl. Umsch.* 6. 77-81. 218

A detailed description of the blood supply to the goat's udder. The mammary artery divides into two branches as in cattle, but the caudal division is not well developed owing to the fact that only two "quarters" have to be supplied. However, an extensive anastomosis of the blood vessels occurs and they freely cross to either side. This increases the ease with which disease processes can pass from one side of the udder to the other. The venous circulation is less cavernous and the teat walls have fewer blood vessels, but otherwise it is similar to that found in cattle.—J. A. NICHOLSON.

MUKHERJEE, S. R. & ROWLANDS, S. (1951.) **A direct method of measuring the circulating blood volume.**—*Lancet.* 261. 98-101. [Authors' summary modified.] 219

A direct method for measuring circulating blood volume by using red blood-cells labelled with radio-phosphorus was described. In 21 dogs, there was an average of $9{\cdot}5 \pm 1{\cdot}7$ ml. per 100 g. of body weight.

The sources of error were discussed, and the over-all error of the method was checked by measurements *in vitro*.

The clinical possibilities of the method were discussed. With modification the method could give a reliable estimate of blood volume within 30 min. of injection.

BORGATTI, G. (1951.) Nuovi esperimenti e note sui movimenti dei prestomaci. **[Movements of the ruminant stomach.]**—*Nuova Vet.* 27. 169-172. 220

Observations on ten lambs indicated that chemical taste stimulation (equivalent to sweet, salty, bitter and sour in human beings) did not modify the rhythmic movements of the reticulum. Simultaneous graphic recordings of the movements of the rumen, reticulum, and omasum were given; the evidence indicated that correlation of contraction of each compartment was not sharp. The rhythmic movement of the reticulum, and its importance in regulating the movements of the other fore-stomachs, was confirmed.—M. BERTANI.

BECKER, R. B., ARNOLD, P. T. D. & MARSHALL, S. P. (1951.) **Development of the bovine stomach during fetal life.**—*J. Dairy Sci.* 34. 329-332. [Authors' summary slightly modified.] 221

Development of the bovine stomach during foetal life is presented, based upon observations of 30 foetuses and two full-term calves obtained upon slaughter or at birth from dairy cows.

In early foetal life the rumen was the largest of the four stomach compartments. At full term, however, the abomasum weighed about one-half as much as the total stomach. Differentiation of the honeycomb in the reticulum was noticed between the 72nd and 100th days. Papillae on laminae in the omasum developed slowly. The empty stomach comprised approximtaely 1·8% of total foetal weight during early development, decreasing noticeably from 6 months to about 1·3% at full term.

HILL, K. J. (1951.) **The glands of the mucous membrane of the goat abomasum.**—*J. Anat.* **85.** 215-220. [Author's summary slightly modified.] 222

The abomasal mucosa from three goats was examined histologically. Cardiac, peptic and pyloric regions are described.

Considerable variation occurred in the number of peptic and parietal cells in the gastric glands. In the abomasum from one goat there was an intermediate zone between the peptic and pyloric regions. The distribution of argentaffine cells in the abomasum is described.

GRAY, F. V., PILGRIM, A. F., RODDA, H. J. & WELLER, R. A. (1951.) **Volatile fatty acids in the rumen of the sheep.** [Correspondence.] —*Nature, Lond.* **167.** 954. 225

Qualitative and quantitative examinations indicated that acetic, propionic and butyric acids were the predominating fatty acids in the ovine rumen. Formic acid was among others present. Acetic acid contributed to the formation of butyric acid and propionic to valeric acid during fermentation, these acids of higher molecular weight possibly being formed by the addition of a compound containing two carbon atoms.

—JOHN SEAMER.

HALL, L. S. & HUHTANEN, C. N. (1951.) **Criteria for judging a true rumen organism and a description of five rumen bacteria.**—*J. Dairy Sci.* **34.** 353-362. [Authors' summary slightly modified.] 224

About 5,000 isolations of bacteria from the rumens of approximately 350 cattle and sheep from several herds in three States were studied and the data used as the basis for these five criteria for judging true rumen bacteria, anaerobiosis, presence in numbers of one million or more per g. of fresh rumen contents, isolation of a similar type bacterium at least ten times from at least two animals, isolation from animals in at least two geographical locations, and production by the organism of end-products found in the rumen from substrates found in the rumen. A description of some physiological characteristics of five rumen bacteria is included.

CHANG, T. K. & LANDAUER, W. (1950.) **Observations on the skeleton of African dwarf goats.**—*J. Morphol.* **86.** 367-379. [Abst. from authors' summary.] 225

Skeletons of new-born and one-year-old male dwarf goats from Nigeria were examined, normal skeletons of Nubian female × Toggenburg male hybrids serving for comparison. The long bones were not only shorter and narrower than normal, but also had thinner shafts. The union of the epiphyses of the distal end of the humerus and the proximal end of the radius occurs more prematurely in the one-year-old dwarfs than in normal goats. There were no abnormalities characteristic of chondrodystrophy. The African dwarf goat is, therefore, not affected with chondrodystrophy, but represents a hereditary disturbance in which the extremities show only a slight degree of disproportionate shortening, the bone histology being normal.

CHRISTENSEN, G. C. (1950.) **Canine renal circulation.**—*Thesis, Cornell.* pp. 58. 226

C. made a careful and detailed study of the renal circulation in the dog. The illustrations are excellent. *Post mortem* neoprene latex and vinylite resin injections were used with hydrochloric acid maceration techniques. *In vivo*, injections of Indian ink into the renal artery were preceded by graduated doses of adrenalin hydrochloride. Unilateral nephrectomy was used to induce renal hypertrophy. The vascular elements of the normal and enlarged kidneys were compared as to shape, size and course.

No evidence was found of a juxtamedullary by-pass. Arciform arteries were found to differ markedly in course from those described in human kidneys. Ludwig's aterioles, arteriovenous anastomoses, arteriolae rectae verae, and other controversial renal vessels were investigated. In surgically induced hypertrophy, an arcuate to interlobar artery anastomosis was found as well as numerous vascular constrictions. The diameters of glomeruli, and of afferent and efferent arterioles were compared over a long series of specimens. The outer cortical and juxtamedullary cortical areas of the kidney were also compared as to arterial and glomerular diameters.—H. L. GILMAN.

SARDA, J. M. (1951.) Problemas actuales de la fisiologia del tiroides. I. Papel de la glándula tiroidea en la defensa contra el frio. **[Role of the thyroid gland in heat regulation.]** —*Bol. Inf. Col. Vet. Esp.* **5.** 33-37. 227

S. agreed with Mansfeld [*V.B.* **20.** 261] that contraction of arterioles under the influence of cold is caused by thyroidin together with some other hormone, but rejected the theory that this second hormone was provided by the pituitary gland. He considered that it was secreted by the hypothalamus.—R. MACGREGOR.

INGLE, D. J. & BAKER, B. L. (1951.) **The inhibition of hair growth by estrogens as related**

to adrenal cortical function in the male rat.—*Endocrinol.* 48. 764-771. [Abst. from authors' summary.] 228

Oestrogen inhibited hair growth in non-adrenalectomized rats and in adrenalectomized rats treated with ACE [adrenal cortical extract] but failed to sustain inhibition of hair growth in adrenally insufficient rats. In one experiment, 12 adrenalectomized rats were treated with ACE for a period of nine weeks. Six received oestrogen and six did not. Oestrogen almost completely inhibited hair growth whereas hair continued to grow in the ACE-treated rats without oestrogen. Microscopic observations of the skin showed that oestrogen suppressed the activity of the hair follicle in non-adrenalectomized rats and in adrenalectomized rats treated with ACE but did not have this effect in the adrenally insufficient rats.

FLORENTIN, P. (1949.) Précisions anatomiques actuelles sur le système nerveux végétatif. Déductions pratiques. **[Anatomy of the sympathetic nervous system.]**—*Encyclopéd. vét. période.* No. 7-8. pp. 259-270. 229

A very general account of the anatomy of the sympathetic nervous system in relation to its function. It contains information that is found in the current textbooks on this subject.—J. K. GAN.

BOVIM, A. (1946.) En anatomisk undersøkelse av hestens hofteledd—articulus coxae equi. **[Anatomy of the hip joint of the horse.]**—*Skand. VetTidskr.* 36. 577-612. [Abst. from English summary.] 230

Norwegian horses are sometimes affected with a hip condition in which the ligamentum teres and the ligamentum accessorium atrophy. This account begins with the results of dissection of normal hip joints in which the accepted descriptions were verified. In addition, a pouching of the synovial capsule extending medially outside the joint cavity along the ligamentum accessorium is noted, together with the occasional occurrence of a bursa between this ligament and the pubis. Reinforcing bands of the joint capsule are also described. It appears that the lesion begins with the ossification of the joint capsule, especially of these reinforcing bands; bone tissue sometimes fills the acetabular fossa, to cause rupture and atrophy of the ligamentum teres and the ligamentum accessorium.—R. N. SMITH.

ERHART, M. B. (1948.) Contribuição para o estudo das *Cartilagines corniculata* (Santorini) e *cuneiformis* (Wrisbergi) na laringe de *Sus scrofa domestica.* **[Contribution to the study of the Cartilagines corniculata (Santorini) and cuneiformis (Wrisbergi) in the larynx of *Sus scrofa domestica.*]**—*Rev. Fac. Med. vet. S. Paulo.* 3. 195-202. [Abst. from English summary.] 231

From dissection of four adult pigs and two foetuses, E. attempted to clarify nomenclature of the laryngeal cartilages of the pig. The cuneiform is present as an independent structure in the foetus and retains its identity in the adult. The corniculate, forming the prominent inner lip on the aditus laryngis, is always closely associated with the arytenoid with which cartilage it is fused in the adult, but its method of origin and elastic nature warrant use of the name corniculate cartilage.

—C. W. OTTAWAY.

KÖHLER, H. (1951.) Zum heutigen Stand der Struktur des peripheren vegetativen Nervensystems. **[Morphology of the peripheral sympathetic nervous system.]**—*Dtsch. tierärztl. Wschr.* 58. 17-22. 232

A general account is given of the morphology of the peripheral paths of the sympathetic system, the ganglia and nerve endings being described and illustrated. The methods used for their determination are discussed and in this connexion it is pointed out that, after section, certain post-ganglionic fibres show surprising resistance to the expected degeneration. The significance of the sympathetic system in veterinary medicine is still largely unexplored, particularly its involvement in certain forms of colic in horses, peptic ulcer in calves, eczema etc., so it provides a large field for research.

—J. A. NICHOLSON.

LASER, H. (1950.) **The isolation of a haemolytic substance from animal tissues and its biological properties.**—*J. Physiol.* 110. 338-355. 233

A haemolytic substance was isolated from plasma and a number of animal organs. Chemical examination revealed it to be an unsaturated fatty acid (*cis* 11-12 octadecenoic acid). Phosphates and haematin increased its action *in vitro,* but many other compounds (protein, cholesterol, lecithin and calcium) inhibited it. The possible role of this substance in the normal and pathological destruction of erythrocytes is discussed.—E. EDEN.

BOLLIGER, A. & GROSS, R. (1951.) **Phenols in hair, with particular reference to certain marsupials.**—*Aust. J. Sci.* 13. 148-149. 234

When extracted with hot water and tested for total phenols, the fur of six species of eutherian mammals was found to contain 25–

60 mg. %. In four breeds of sheep the Merino had the lowest values and the Corriedale the highest. The fur of seven marsupial species contained 120–720 mg. %, and in the common phalanger (*Trichosurus vulpecula*) the values varied from one body region to another.

—M. H. Hardy.

Astbury, W. T. (1950.) **The molecular structure of skin, hair, and related tissues.**—*Brit. J. Derm.* 62. 1-15. 235

Studies at molecular level revealed a similarity between keratin, myosin, epidermis and fibrinogen among other features that the α configuration [representing a state of rest] of their molecular yarns can be extended to the β state as an explanation of stretch. Recent work has demonstrated a contractile property in keratin fibres subjected to certain thermal conditions and a structure analogy is drawn between this and contraction of muscle. Myosin alone is not responsible for muscle contraction and it is further suggested that the protein actin —which may also play a part—has a structural origin in common with that of the epidermis. In a review of trends of biomolecular research. A. discusses fibre interrelationships and build up, and the impact of molecular biological discoveries on the principles of phylogeny.

—C. W. Ottaway.

Carpenter, A.-M., Polonsky, B. & Menten, M. L. (1951.) **Histochemical distribution of glycogen. I. Evaluation of methods.**—*Arch. Path.* 51. 480-485. [Authors' summary copied *verbatim*.] 236

It is difficult to ascribe specificity to the staining technics used for the histochemical localization of glycogen because of the variable results obtained. This variability may be ascribed in part to differences in the structure and composition of tissue complexes which contain glycogen and which may be modified by local physiologic or pathologic conditions. Another factor underlying variability of result is a technical one, namely, the type of hydrolytic agent incorporated in the method designed to release moieties, which act directly with the staining reagent, from the tissue complexes. Other modifying factors are discussed.

See also abstr. **42** (variation in blood cells of healthy cattle); **135** (biochemical approach to viruses); **293** (annual review of biochemistry).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

Bolduan, C. F. [M.D. Formerly Director, Bureau of Health Education, Dept. of Health, City of New York.] Bolduan, N. W. [M.D. Chief Pediatric Service, St. Francis Hospital, Santa Barbara, Calif.] (1949.) **Public health and hygiene. A students' manual.** pp. ix+423. Philadelphia & London: W. B. Saunders Co. 4th Edit. 22s. 237

A general textbook of human hygiene.

Some attention is given to the history of development of hygiene as now understood and the book serves incidentally as a guide to the progress of hygiene in the U.S.A. during the last century.

It is divided into four parts: General, Communicable Diseases, Non-Communicable Diseases, Community Hygiene and Health Administration. The text is divided into 49 chapters which fit within these five Parts. The book as a whole gives a good cover of this subject.

Information relating to such ancillary subjects as "the life history of insects that are related to the transmission of diseases", the principles of nutrition etc., is included throughout the book where necessary. Throughout, the subject is dealt with in relation to conditions in the U.S.A. This is particularly evident, *e.g.* in the chapter on "Administrative Control of the Milk Supply".

The illustrations are clear and the text is eminently legible. The illustrations and printing are good, as is the quality of the paper and binding.—R. Macgregor.

Gopalkrishna, B. N. & Lakminarayana, H. (1949.) **Studies on the coliform bacteria in milk. I. Source, incidence and distribution.** —*Indian J. Dairy Sci.* 2. 135-145. 238

The authors recorded their findings on the presence of coliform organisms and the total bacterial count in milk samples collected from various sources and their seasonal variation.

—M. M. Singh.

Frear, D. E. H., Bruce, W. N. & Ragsdale, A. C. (1950.) **D.D.T. in milk following barn spraying.**—*J. econ. Ent.* 43. 656-657. 239

From data presented the maximum amounts of D.D.T. in milk were found one or two days after barns were sprayed and with one exception (0·9) did not exceed 0·5 p.p.m.

—Beryl A. Thurston.

Forss, D. A. (1951.) **Relation of the essential oils of *Coronopus didymus* to the tainting of butter.** [Correspondence.]—*Nature, Lond.* 167. 733-734. 240

Consumption of *Coronopus didymus*

[(lesser swine's cress) *Cruciferae*] produced an intractable taint in milk and butter; this was caused by benzyl mercaptan, a minor constituent of the essential oil of the plant.

—John Seamer.

Hansen, H. C., Wiggins, G. E. & Boyd, J. C. (1950.) **Modern methods of mastitis treatment cause trouble in the manufacture of fermented dairy products.**—*J. Milk Food Technol.* **13.** 359-365. 241

The manufacture of cheese was adversely affected by the presence in the milk of drugs used in the treatment of mastitis. The use of penicillin, streptomycin, aureomycin, sulphanilamide and sulphamerazine caused inhibition of growth of lactic acid bacteria when only 1% of the milk was from a treated quarter. If milk from treated quarters was discarded for three days after the treatment, there was no more adverse effect upon cheese production.

—R. Marshall.

Muir, R. O., Norval, J. & Soulsby, E. J. L. (1951.) **The isolation in pure culture of a coliform bacillus belonging to the paracolon group from the carcase of a ewe submitted for meat inspection.**—*Vet. Rec.* **63.** 565. [Authors' summary copied *verbatim.*] 242

The isolation, in large numbers, of a paracolon bacillus from the abdominal viscera and flesh of a ewe and from the internal organs of its foetus, probably resulting from an *ante-mortem* invasion of the blood from the bile or intestine, due to physiologial changes associated with pregnancy toxaemia, is described. Without bacteriological examination the carcase might well have been passed fit for human consumption. The provision of bacteriological facilities at abattoirs for the examination of casualty animals is imperative.

Pollitzer, R. (1950.) **A note on the use of anti-coagulants for rat extermination.**—*Bull. World Hlth. Org.* **3.** 343-345. [French summary. Abst. from English summary.] 243

The use of anti-coagulants for rat extermination is recommended as being less dangerous to human beings than the usual rat poisons, although their initial action might be too slow for rat control when dealing with an outbreak of *Pasteurella pestis* infection (plague) in human beings. White rats of 250 g. body-weight survived only two weeks on a diet containing 2 mg. daily of dicoumarol (3:3′-methylene-bis-4-hydroxycoumarin); large numbers of killed rats were recovered four to five days after poisoning with warfarin (3-α-acetonyl-benzyl)-4-hydroxycoumarin) in concentrations of 1 mg. per g. of bait, and concentrations of 0·05 mg. per g. were also used successfully. Prebaiting was unnecessary with anti-coagulants.

Jensen, H. (1951.) Erstatningskrav vedrørende skader på dyr m.v. **[Danish law concerning compensation for injury to animals.]** —*Maanedsskr. Dyrlaeg.* **62.** 1-20. 244

A review of the situation. Extracts are given from various Danish laws to clarify the position of the claimant *versus* the defendant in actions arising from injuries to animals. The position of the veterinary surgeon, the owner and of other parties in such claims is dealt with.

—J. Edwards.

Martinez, R. (1949.) Organisation des services sanitaires vétérinaires au Vénézuela. **[Veterinary services in Venezuela.]**—*Bull. Off. internat. Epiz.* **32.** 223-234. 245

The country has a heavy rainfall from Oct.-April, but none at all during the remaining six months. It can be divided into three zones, (a) the Llanos or high slightly undulating plateaux 50–300 m. above sea level, which carry a large cattle population, fairly evenly distributed during the wet season, but tending to crowd round the water holes during the dry season and so denuding the surrounding pasture. (b) The Andes, where there is a large population both human and animal as water is abundant. Cattle predominate, but pigs and sheep are also kept and the best mules are bred here. (c) Maracaibo has good herbage and a progressive population. Milk is the chief produce but good horses are bred also. There are indefinite intermediate zones, some of which are arid. The Directorate of Livestock is divided into a Hygiene and Sanitary Service division, a Zootechnological division, a Stock Development division and a Technical Information division. The Hygiene and Sanitary division controls epizootics by means of sanitary police, regional veterinary posts, veterinary dispensaries, quarantine and premunizing stations. Imported animals are quarantined on the island of Orchila, a day's sail from the port, which ensures strict isolation. Each herd imported is mixed with animals of local breed which are used as detectors, and their blood and saliva are injected into other "detector" animals, and the imported herd is not released unless all "detectors" remain free from disease. Pure-bred imported cattle are premunized against tick borne disease with blood from local animals infected with strains of low virulence. In the interior, the campaign against ticks is progressing and the use of dips including toxaphene (a

chlorinated camphene) is increasing. All dairy cows are tuberculin tested, and it is hoped that before long the policy will be to slaughter reactors. Research is being carried out on the plurality of rabies virus, on equine encephalomyelitis, on the use of crystal violet vaccine against swine fever, on *Trypanosoma venezuelense* and *T. vivax*, on pneumo-enteritis of calves and vesicular stomatitis of cattle.
—R. MACGREGOR.

HEGUITO, H. R. & VIDAL, W. G. (1949.) La enseñanza veterinaria en Europa Occidental. **[Veterinary colleges in Europe.]** pp. 16. Montevideo: Facultad de Veterinaria. [Mimeographed.] 246

A brief general account of the curricula at veterinary colleges in Belgium, France, Great Britain (no mention of Bristol or Cambridge), Holland, Italy, Portugal, Spain and Switzerland.—R. MACGREGOR.

See also absts. **4** (examination of milk samples for *Str. agalactiae*); **10** (anthrax bacilli in tannery effluent); **56** (tularaemia from sewer water); **159** (ascarid eggs in drainage waters); **295** (book, meat packaging and processing).

LIVESTOCK HYGIENE

See also abst. **239** (D.D.T. in milk, following barn spraying).

REPRODUCTION AND REPRODUCTIVE DISORDERS

GOULD, G. N. & BENNETT, G. H. (1950.) **Fertility of bulls, and artificial insemination.** —*Vet. Rec.* **62.** 493-498. 247

A period of unsatisfactory fertility was terminated following the introduction of changes in bull management. Within three months conception rate returned to 69% and remained there. But herd comparisons during the period of lowered male fertility indicated that "highly fertile females will conceive readily to high, average, *or low* fertility semen but that" . . . less fertile females "will show a progressively lowering conception rate to less fertile semen. The apparently effective measures comprised one complete month's rest in four for each bull, and a reduction in ejaculates taken to about 50 *per annum*. The ensuing increase in dilution necessary had no effect on results. Measures taken which did not affect the lowered fertility included change of source of diluent; adjustment of Ca/P ratio, vitamin content etc. in the ration fed; addition of sulphanilamide to semen; hormonal treatment of bulls. The general technique had also been subjected to independent scrutiny.—F. L. M. DAWSON.

VAN ZIJL, W. J. (1949.) Een nieuwe methode ter beoordeling van de beweeglijkheid van runderspermatozoïden. **[A method of judging the motility of bull spermatozoa.]**—*Tijdschr. Diergeneesk.* **74.** 553-558. [English summary.] 248

In this method to determine the individual activity of bull spermatozoa, the apparatus used is home-made. By mounting strips of glass with Canada balsam on a slide, a chamber 65 mm. × 6 mm. × 0·8 mm. is made. A threshold (height 0·6 mm.) is made with a small piece of metal or coloured glass (breadth 2 mm.) 0·6 mm. from one end. The chamber is covered with a second slide. The edges are ringed with vaseline. The chamber is filled with a buffer solution "Romijn 400" and a drop of semen is placed behind the threshold. After incubation at 37° C. for 30 min. the chamber is examined under a microscope with a mechanical stage. In this way the distance covered by individual spermatozoa can be measured.
—C. A. VAN DORSSEN.

BONADONNA, T. (1950.) Problèmes de la dilution du sperme de taureau. **[The dilution of bull semen.]**—*Ann. Med. vet.* **94.** 362-372. 249

Egg yolk citrate is considered to be still the best diluent known. B.'s own recent results underline the importance of using chemically pure citrate having a known degree of hydration, and of egg yolk not more than 24 hours old. Also stressed are the glass-distillation of water and the careful equalization of temperatures before dilution. Dilution from 1:15 to at least 1:25 is always indicated, as improving viability without reducing conception rate. The best fertilizing power appears to be reached 5–8 hours after dilution; an argument against the earlier use of the semen.—F. L. M. DAWSON.

STEWART, D. L., MELROSE, D. R. & WILSON, W. R. (1950.) **The effect of reducing the quantity of egg yolk in bovine semen diluents.**—*Vet. Rec.* **62.** 617-618. 250

The authors report what they believe to be the first controlled experiment on the effect upon fertility of reducing the proportion of egg yolk in citrate diluents frm 50 to 25%. Of the semen employed 83% was diluted 1:50 with both control and experimental diluents, which were used by each inseminator on alternate days. A

total of 1,885 first inseminations was made with the control and 1,794 with the trial diluted semen, both up to three days old. The control gave a 62·3% conception rate and the trial 61·1%. The difference was not statistically significant and the rather low rate could be ascribed to the fall in fertility, during the experiment, of one of the bulls used. The authors consider that at Reading 200 dozen eggs or £50 per annum might be saved.—F. L. M. Dawson.

Jahnel, J. (1948.) Einfache elektrische Heizvorrichtung für die mikroskopische Untersuchung von Samenproben. **[Simple electric heating appliance for microscopic examination of semen.]**—*Wien. tierärztl. Mschr.* **35.** 301-303. 251

Constructional details and a diagram are provided of a simple electrical device for maintaining semen samples at a suitable temperature during microscopic examination. The apparatus can be run either from the main supply by means of a transformer or from a 4-volt accumulator.—A. N. Worden.

Polge, C. (1951.) **Functional survival of fowl spermatozoa after freezing at −79°C.** [Correspondence.]—*Nature, Lond.* **167.** 949-950. 252

Fowl semen diluted with equal volumes of 30% glycerol and cooled to −79°C. for one hour was dialysed through cellophane against Ringer's solution. 50% of the spermatozoa were killed. Twice the normal volumes of semen inseminated produced fertile eggs from 51 out of 83 hens with 71% hatchability. Storage of semen at low temperatures is compatible with the production of normal chicks.

—John Seamer.

Bonadonna, T. (1950.) Jugements pour le diagnostic de la gestation dans l'application de l'insémination artificielle. **[Diagnosis of pregnancy in cows following artificial insemination.]**—*Rec. Méd. vét.* **126.** 513-518. 253

B. criticizes the method in vogue in Great Britain and the U.S.A. wherein those cows to which the inseminator has not been recalled 60–90 days after the first visit are assumed to be pregnant. In his organization all pregnancies are checked by rectal examination. An experiment involving 4,780 cows showed the percentage error of the Anglo-American method to be 8 at 60 days post insemination and 2·7 at 90 days. [The practical difficulties and drawbacks of routine rectal diagnosis are not mentioned.]—F. L. M. Dawson.

Bonadonna, T. (1950.) Dei criteri per la diagnosi dello stato di gravidanza applicando la fecondazione artificiale. **[Pregnancy diagnosis and artificial insemination.]**—*Zootec. Vet., Milan.* **5.** 630-635. [Abst. from English conclusions.] 254

Conclusions drawn from the data obtained in these experiments show bovine venereal disease and the appearance of silent oestrus to be common in Italy.

Diagnosis of pregnancy by rectal examination 40–60 days after artificial insemination is safest; and statistical results based on appearance of oestrus are unreliable.

—Margaret B. Cooper.

Crawley, J. F., Wills, C. G. & MacGregor, K. L. (1950.) **Bovine vaginitis. A preliminary note on an organism commonly associated with the condition.**—*Canad. J. comp. Med.* **14.** 5-10. 255

A Gram-negative rod, unclassified, was found to be commonly associated with vaginitis. The disease was reproduced in normal heifers by transfer of scrapings from infected animals and also by application of pure cultures of the above organism. Inflammation appeared in about one week and nodules were present in 2–3 weeks after inoculation. The nodule formation reached its peak in 2–4 months. Direct evidence was not obtained to prove that vaginitis was a cause of sterility, but in the authors' experience, a temporary sterility appeared to be associated with the condition.

—P. J. G. Plummer.

Terpstra, J. I. & Eisma, W. A. (1951.) Over bacteriën en steriliteit. **[Sterility caused by bacteria.]**—*Tijdschr. Diergeneesk.* **76.** 363-368. 256

The importance in sterility in cattle of streptococci, staphylococci, *Corynebacterium pyogenes, Pseudomonas,* diphtheroids and other micro-organisms is often overestimated. They can often be isolated from the normal genital tract of cattle. When they are involved in pathological conditions these processes are often dependent on the functional condition of the genital tract. Infections by *Brucella abortus* and by *Trichomonas foetus* are also influenced by physiological factors (pregnancy, sexual cycle). Therefore an important part in sterility is played by non-infectious factors. [See also following abst.]—C. A. van Dorssen.

Terpstra, J. I. & Eisma, W. A. (1951.) **Vibrio foetus infection in cattle and enzootic infertility.**—*Tijdschr. Diergeneesk.* **76.** 433-447. [In English.] 257

Three bulls, naturally infected with *V.*

fetus, were mated with groups of five, one and seven uninfected yearling heifers respectively, and blood and mucus agglutination tests and cultural examination of mucus were carried out. The seven previously uninfected heifers were slaughtered at periods varying from 6–94 days after first service. A transitory vaginitis with pus formation developed in almost all cases, and vibrios were recovered from the vagina and cervix for periods up to six months. Reaction to the blood and mucus agglutination tests usually developed within 3–6 weeks of service, the former being very transitory, and the latter persisting for some months. Four of these animals had catarrhal salpingo-endometritis and cervicitis, the histological pattern of which is described and illustrated. None of the heifers conceived to a first service and oestrus became irregular. An associated infection with a Gram-negative haemophilic bacillus was demonstrated in the vaginal secretions of all these animals, and also in the prepuce of the bull. Use of a fourth bull on four clean cows and heifers killed 33–68 days after service tended to confirm the above findings. Attempts to infect chick embryos and to infect two heifers with filtered semen failed to incriminate a virus. *V. fetus* culture was introduced into the prepuce of a "clean" bull which was then mated to a clean heifer and seven heifers were artificially inseminated with "clean" semen to which *V. fetus* had been added; they all acquired the infection. *V. fetus* could be recovered only from the semen and prepuce of bulls. The penis and prepuce of three infected bulls with bad breeding records were treated with penicillin; 21 of 24 heifers mated to these bulls conceived to first service. Of two pregnant cows fed *V. fetus*, one developed a temporary blood titre but no other abnormality, and the other remained healthy. The authors concluded that enzootic sterility is caused by *V. fetus* infection and that spread is mainly by coitus.—C. C. BANNATYNE.

ANON. (1951.) Comite voor steriliteitsbestrijding Veeartsenijschool: Gent. Verslag over het werkjaar 1950. **[Committee for the control of sterility. Veterinary College, Ghent. Report for 1950.]**—*Vlaam. Diergeneesk. Tijdschr.* **20.** 33-46. [English summary.] **258**

The oestrous cycle in 7,800 cows varied from 20–21 days. In East-Flanders the conception rate was 61%. The most fertile of 16 bulls fertilized 86% of 111 cows, the least fertile 37% of 62 cows. The most fertile bulls fertilize nearly all healthy cows at the first mating. The season and feeding have no influence on the fertility of cattle, but oestrus is less marked in winter when the cows are housed. In 30% of sterile cows and mares no abnormalities of the genital apparatus were found. The most important causes of sterility in cattle are *Trichomonas* infection, silent oestrus and nymphomania. Since the introduction of artificial insemination many cases of "white heifer disease" had been diagnosed. In the bull the most important cause of sterility is *Trichomonas*. In one case *Trichomonas* and *Vibrio fetus* were both found. In bulls 10–12 months old an important cause of sterility is low concentration of spermatozoa. This condition is cured by some months of rest and good feeding. Some cases of testicular hypoplasia were seen. Hypoplasia of the ovaries was very rare.

The best therapy for purulent metritis in cattle proved to be intra-uterine infusions with 200 ml. of an oily suspension of sulphanilamide, sulphathiazole, sulphone, penicillin and streptomycin [no doses mentioned].

—C. A. VAN DORSSEN.

DE GROOT, T. (1949.) De invloed van de erfelijkheid op vruchtbaarheid en onvruchtbaarheid. **[Heredity of fertility and sterility.]** —*Hemera Zoa.* **56.** 265-285. [English and French summaries.] **259**

A discussion of the literature.

—C. A. VAN DORSSEN.

DURRELL, W. B. (1951.) **A survey of the role of nutrition in sterility of dairy cattle.**— *Canad. J. comp. Med.* **15.** 1-11. **260**

A survey in Western Quebec in 1946 revealed that approximately 15% of dairy cattle of breeding age manifested sterility in some form, the most common being anoestrus and delayed conception. The loss was estimated to be over 10 million dollars. Malnutrition was found to be an important predisposing factor, being considered responsible for 47% of the cases observed. A low plane of nutrition was usually associated with the occurrence of anoestrus and silent oestrus in females and impotence in males. Pasture was markedly beneficial and it is suggested that fresh grass provides gonadotrophic precursors lacking in winter rations. Observations were made on the effect of iodine, phosphorus, endocrine imbalance, infections and metabolic disease, age, heredity, environment, and milk production. From 60–70% of the cases were considered to be preventable. Endocrine balance and natural resistance to disease appeared to depend upon adequate nutritional support.—R. GWATKIN.

AAMDAL, J. (1951.) Forandring i spermienes kromatinsubstans og i galea capitis som årsak til sterilitet hos okse. **[Changes in the**

chromatin substance and in the spermatozoon head causing sterility in bulls.]—*Nord. Vet.-Med.* **3.** 102-108. [English and German summaries. Abst. from English summary.] **261**

The author describes two cases of sterility in bulls in which motility, density, dehydration activity and hyaluronidase content were normal. Only 8 out of 180 cows served by the one bull and 4 out of 46 served by the other became pregnant.

In opal blue preparations changes were found in the spermatozoon heads and further examination by phase contrast microscopy revealed inversion of the heads and crater-shaped depressions in the chromatin substance of the spermatozoa.

GLOVER, F. A. & BLAIR, G. W. S. (1951.) **Bovine sterility and pregnancy in relation to the rheological properties of cervical secretions.** [Correspondence.]—*Nature, Lond.* **167.** 285. **262**

A total of 242 samples were taken from the cervical secretions of four heifers over a period of nine months. Variations in viscosity in the various stages of the oestrous cycle and pregnancy were studied. Preliminary results indicate that a useful method of early pregnancy diagnosis in cattle may evolve.

—C. C. BANNATYNE.

SHAW, W. B. (1950.) **Non-specific infertility.** —*Vet. Rec.* **62.** 542-544. **263**

A series of specialist clinical impressions from practice. The bulk of the cases are held to be departures from normal physiology, sometimes correlated with obviously imperfect nutrition. S. considers that cows with a degree of uterine tone above average during oestrus are apt to be relatively infertile, and suggests that the use of Lugol's iodine may both prolong and perhaps also cause a catarrhal endometritis. S. has remarked on the apparent depressive effect of high milk yield on reproductive function. A study of blood trace element levels in non-breeders was inconclusive.—F. L. M. DAWSON.

JAMES, J. P. (1949.) **Feeding and management of bulls in relation to their sexual strength.** —*Proc. Ruakura N.Z. Frmrs. Conf. Week.* 1949. pp. 188-197. **264**

Experiments with twin bulls shewed that the level and nature of the protein in the diet they were consuming had little effect upon sexual strength, but that poor diet from weaning with consequent low body weight was associated with lower sexual strength.

—R. MARSHALL.

THOMSON, D. M. (1950.) **Some notes on the management of bulls in relation to semen production. (Based on observations and experiments made at the Ruthin Cattle Breeding Centre.)**—*Vet. Rec.* **62.** 480-481. **265**

The number of bulls observed is not given. The effect of spring grass *ad libitum* was consistently to lower the total sperm yield per collection. A protein carbohydrate ratio of 1:3 was found to give the best results; any departure caused a disturbance of semen quality until the old ration was restored. There was concurrent constitutional disturbance. There was wide individual variation in optimum concentrate rations of 6 and 15 lb. for two apparently similar bulls. Experiments on decreasing the intervals between collections, and increasing the number of ejaculates taken showed that reducing the interval from seven to four days produced a gradual deterioration in semen quality. Increasing ejaculates from two to four per collection brought about a much more rapid depreciation from which recovery was slower.

—F. L. M. DAWSON.

BECKER, R. B., ARNOLD, P. T. D. & MARSHALL, S. P. (1950.) **Changes in weight of the reproductive organs of the dairy cow and their relation to long-time feeding investigations.**—*J. Dairy Sci.* **33.** 911-917. [Authors' summary modified.] **266**

Weights of nine non-gravid and 39 gravid uteruses and contents are presented. Significant changes in gross body weight occurred between the 61st day of gestation and full term.

Using an 800-lb. cow as an example, computation of total digestible nutrient requirements by Morrison's standard, with 122-lb. gains evaluated at 3·53 lb. of total digestible nutrients per lb. of gain, would amount to 1,983 lb. of total digestible nutrients. On the other hand, if growth and maintenance of the more highly moist foetus and associated tissues were attained within the liberal Morrison standard, an excess of over 430 lb. of total digestible nutrients would have been computed—a difference of over 27% of maintenance would have been incurred over the last 220 days of gestation.

It is suggested that gross body weights be computed to net weights (less gains due to gestation) when trying to control body weights by regulating the level of concentrated feed during long feeding trials.

DONALD, H. P., BIGGAR, W. S. & LOGAN, D. M. (1951.) **Monozygotic bovine quadruplets.**—*Heredity.* **5.** 135-142. [Authors' summary copied *verbatim*.] **267**

The first reported set of one-egg bovine

quadruplets is described. The sex distribution in quadruplets and quintuplets does not suggest that one-egg twinning is important in their production.

MANDL, A. M. & ZUCKERMAN, S. (1951.) **Numbers of normal and atretic oocytes in unilaterally spayed rats.**—*J. Endocrinol.* 7. 112-119. [Authors summary copied *verbatim.*] 268

A quantitative study of the number of oocytes at different stages of development in the remaining ovary of unilaterally spayed rats has confirmed earlier results reported by Arai (1920). The ovary doubles in weight, and produces as many mature Graafian follicles as are found in the two ovaries of litter-mate controls. The number of primordial oocytes remains at the level normal for one ovary.

TEUNISSEN, G. H. B. (1950.) Invloed van oestron en progesteron op de hondenuterus mede in verband met het ontstaan van endometritis. **[Endometritis in dogs and the effect of oestrone and progesterone on the uterus.]**—*Tijdschr. Diergeneesk.* 75. 785-808. [English summary.] 269

The influence of oestrone and progesterone on the uterus of the bitch was investigated in ovariotomized and unspayed bitches. Before and after the treatment parts of the uterus were excised and examined histologically.

Seven ovariotomized and 13 normal bitches received injections of oestrone (3–31 injections of 500–10,000 U.). In six cases some hyperplasia of the glands and infiltration were seen; in one case there was an endometritis. Intact bitches reacted best.

Four ovariotomized bitches that had not been injected before and seven unspayed and four ovariotomized ones of the oestrone series were injected with progesterone (11–24 injections of 10–50 mg. progestin). In some cases one horn of the uterus was separated surgically after ligation and left in the abdomen. At the start of the injections the uterus was in oestrus (spontaneous or artificially induced by oestrone) or in met-oestrus. In 14 cases marked growth of the glandular and superficial epithelium was seen and in 11 cases an endometritis developed. In six cases the endometritis was bacteriologically positive (staphylococci). Bacteria were found also in the separated horns. When the progesterone injections were stopped the inflammation healed, but bacteriological findings remained positive. By a second series of injections the inflammation could be induced again.

—C. A. VAN DORSSEN.

ROBSON, J. M. (1951.) **Local action of steroids on secondary sex organs of male rats.**—*J. Physiol.* 113. 537-541. [Author's summary copied *verbatim.*] 270

The local androgenic effects of a number of steroids have been investigated by implantation into the seminal vesicle and vas deferens of castrated rats. Marked local effects on the epithelium were observed with testosterone and its esters and slight effects with androsterone and progesterone. Other steroids produced an increase in the weight of the seminal vesicle without any effect on the histological appearance of the epithelium.

The possible inhibition of the action of testosterone by several steroids was investigated. Evidence that progesterone can produce slight inhibition was obtained.

HAMMOND, J., JR. (1951.) **Effects of androstenedione and progesterone on oestrous swelling of the ferret vulva.**—*J. Endocrinol.* 7. 172-176. [Author's summary copied *verbatim.*] 271

Quantitative data are given of the anti-oestrogenic action of progesterone on the vulva of the normal oestrous ferret, and the oöphorectomized animal treated with oestrogen implants. Initial experiments that suggested a similar action of androstenedione, such as has been reported on the mouse vagina, were not confirmed.

Amounts of androstenedione at least 80 times as great as those of progesterone that were effective in collapsing the normal oestrous vulva, and at least 10 times as great as those that antagonized the effect of oestrogen on the vulva and vaginal smear of the castrate, produced no effect.

In view of the different method of administration, among other factors, exact equality of relative anti-oestrogenic potency in mouse and ferret was not to be expected; but the observed difference suggests that androstenedione may be metabolized differently in the two species, the metabolites varying in anti-oestrogenic action.

THOMSON, A. P. D. (1951.) **Relation of retinal stimulation to oestrus in the ferret.**—*J. Physiol.* 113. 425-433. [Author's summary copied *verbatim.*] 272

On the assumption that light-induced oestrus in the female ferret operates through the eye, the present experiment was designed to determine which component of the optic nerve was concerned in the response.

Four groups of animals were used: (a) animals in which only the optic nerve fibres

were divided, and in which the central artery to the retina, and the long and short ciliary vessels and nerves, were left intact; (b) animals in which the optic nerve fibres were not disturbed, and all the other structures named above were crushed; (c) animals in which both sets of connexions were divided, i.e. division of the complete optic nerve; and (d) controls. In this last group were control-operated and normal unoperated animals.

The animals were separated into a 'control' and an 'experimental' group each containing animals from (a), (b), (c) and (d). The control group was placed in half of an experimental room which was illuminated by daylight only, while the experimental group was placed in the other part of the room, which, in addition to normal daylight, was artificially illuminated for 6 hr. daily, from October 1947 until April 1948.

The experiment showed that the gonadal response to added light appeared to depend on the integrity of the ganglion cell layer of the retina and that the initial mechanism in the transference of light stimuli from the eye to the ferret hypophysis is a nervous one.

Safar, R. & Dupaigne, M. (1950.) Relations entre la formule leucocytaire et le cycle vaginal chez la rate blanche (normale et castrée). **[The leucocyte index and the oestrous cycle in rats.]**—*C.R. Soc. Biol. Paris.* **144.** pp. 1044-1046. 273

Ten rats, 3½–4 months old were subjected to vaginal epithelium sampling twice daily for 15 days. The result established the existence of a normal oestrous cycle of average 4½ days' duration For a further 15 days, blood films were taken at the same intervals as the vaginal rubbings. There was some consistency in the results from all the animals, the proportion of polymorphs to lymphocytes remaining constant at a given stage of the cycle, and varying in the individual in such a way that polymorphs were fewest in the blood—about 25% of the leucocytes—when they were most numerous in the vaginal epithelium, *i.e.*, during dioestrus, and *vice versa*. In five spayed rats sampled over a similar period there was no cyclic variation either in the vaginal or blood pictures, the polymorph percentage varying little from about 98.—F. L. M. Dawson.

Kelley, R. B. (1951.) **Polledness in domestic animals with special reference to sheep.**—*Aust. vet. J.* **27.** 8-15. 274

It is claimed that in rams of recently evolved varieties of polled Merino and Polwarth sheep, (a) energy is conserved, and (b) there is freedom from fly strike on the head. Experimental support for the latter contention is detailed. Horn types in sheep are classified into four grades, horns (H), knobs (K), scurs (S), and depressions (D).

Observed frequencies of the different grades in Merino, Dorset Horn, Border Leicester and Southdown sheep are reported. Apart from the Dorset Horns which were all in the H class, each breed fell in at least three of the grades, indicating low frequencies of the genes for hornedness in the polled breeds and the reverse situation in Merinos.

Details are given of the results of matings between S and D rams and K and D ewes in an effort to develop polled Merinos, the outstanding feature being the high frequency of the D, K and S classes in the offspring. It is considered that these selection data preclude any simple genetic explanation, and it is suggested that genetic control of hornedness is by a major gene (or genes) while there are minor or polygenes with quantitative effects governing the degree of hornedness. Some of the latter may be on the Y chromosome, explaining the sex difference.

The practically useful points emerging are (a) the importance of finding and using only depression sheep as parents; (b) the significance of regarding sheep with knobs as essentially horned types.—A. A. Dunlop.

ZOOTECHNY

Thompson, D. S. (1951.) **Fat lamb production: report on breed trial conducted at Wynyard, 1950.**—*Tasm. J. Agric.* **22.** 156-168. [Author's summary modified.] 275

A trial is described in which lambs from cross-bred ewes by Southdown, Ryeland, Dorset Horn and Border Leicester rams, were compared. Lambs by the Dorset Horn ram were the heaviest at birth, made the fastest growth rate and produced carcasses which were equal in weight to those by Border Leicesters and some 2 lb. heavier than those by Southdowns and Ryelands. Dorsets also produced the highest proportion of sucker lambs.

Dorset Horn lambs required the most assistance and suffered the highest mortality at birth. Southdowns produced the best quality carcasses for export. Border Leicester carcasses were the least desirable. Skin values were equal to and in some cases exceeded car-

cass values. Dorset Horn skins brought the highest prices. The Dorset Horn cross lambs returned the greatest value per head. There was little difference between the remainder. Percentage of lambs reared was more important in determining total returns than weight or quality of the lambs. In this trial the Ryeland cross returned the greatest value per ewe lambed.

RENDEL, J. M. (1950.) **Experimental analysis of the inheritance of productivity and growth in pigs.**—*Anim. Breed. Abstr.* **18.** 235-240. 276

In this review article, R. considers two groups of characters—those which seem to belong to the sow, such as litter size and weight up to weaning, and those which seem to belong to the individual, such as growth rate, final weight at a given age, economy of gain, and characters of conformation. Sow characters have been shown to have a low heritability and a low repeatability, while characters of conformation, such as length of carcass, thickness of back and belly fat, firmness of fat and size and shape of ham, are highly heritable. Rate and economy of gain have intermediate heritability, and in the experiments quoted the calculated heritability for these characters was considerably higher than that indicated by the response to selection. Experiments have suggested that selection for economy of gain in particular, but also selection for rate of gain, probably produces fat pigs, with good appetite and low activity, which are characterized by low fertility and low weaning weight in their offspring. More studies of the effects of selecting for sow characters on growth rate are needed.—E. COTCHIN.

STEWART, I. J. (1951.) **Infra-red brooding tests at State Research Farm.**—*J. Dep. Agric. Vict.* **49.** 9-12. 277

Tests were carried out to compare results of rearing chickens with the aid of (a) infra-red lamps, (b) an electric hover, and (c) an electric battery for two weeks and an electric hover thereafter.

Infra-red lamps (one 250 watt for each 100 chickens) involved a lower initial outlay but higher running costs. Feed consumption was highest but weight gains were greatest under the I.R. lamps. Severe cannibalism under the I.R. lamps caused the group to have by far the highest mortality.—L. HART.

See also abst. **287** (report, India).

TECHNIQUE AND APPARATUS

ANNEAR, D. I. (1951.) **The inoculation, cultivation and enumeration of bacteria on glass surfaces. Methods for disinfection studies.**—*Aust. J. exp. Biol. med. Sci.* **29.** 147-151. [Author's summary copied *verbatim*.] 278

Methods have been described for the inoculation, cultivation and enumeration of bacteria on glass surfaces. These methods are at present being employed in measuring the effect of atmospheric humidity on the survival of bacteria. Attention is directed to the possible application of the methods in related fields.

GRÖBL, T. (1950.) Histologische Technik. Einführung in die Technik der normalen und pathologischen Histologie für Anfänger. [**Introduction to the technique of normal and pathological histology for beginners.**] pp. vii + 201. Vienna: Wilhelm Maudrich. DM. 18.-. 279

In this useful handbook the author sets out to provide an introduction to microtechnique in both histology and pathology for the technical assistant under training.

The success of the work can be attributed to the general clarity of explanation and the limited scope it attempts to cover. The reader is not confounded by a confusing array of alternative methods but is shown a limited number of proven favourites.

In the early chapters, use of the microscope, operation of the common types of microtome, fixation and embedding methods are discussed with commendable simplicity and yet in sufficient detail for the beginner. A further explanation of the process of dehydration would be profitable, and reference to the more recent formic acid-sodium citrate methods might be a welcome addition to the section on decalcification. General staining methods are followed by the usual special methods for the identification of tissue components, cell inclusions and bacteria. There are separate brief sections outlining methods of staining blood, muscle, cartilage, bone and the nervous system. Tabulation of each method stage by stage is a feature throughout the book and the method of presentation is of good standard.—E. H. BATTEN.

LEHNERT, E. (1948.) Einige Bemerkungen zu den Verwandtschaftsreaktionen bei der Eiweissdifferenzierung unter besonderer Berücksichtigung der Methode von Satoh. [**The identification of proteins of serum**

albumin of different species of animals using precipitation and complement-fixation tests.] —*Skand. VetTidksr.* **38.** 683-708. [In German. English summary.] **280**

Precipitation procedures alone were not found to be adequate for the identification of protein from closely related species (*viz.* moose, reindeer, red deer, roe-deer and cattle), even when immune serum dilutions were employed. Precipitation times were often considerably delayed, and the degree of cross-precipitation was such that it was frequently impossible to secure clear-cut identification. Better results were obtained from use of the complement-fixation test using a series of serum dilutions, but even here there were many doubtful cases and it is suggeted that a combination of precipitation and complement fixation is preferable to the use of either procedure alone.—A. N. Worden.

Gligorijević, J. Ž. (1948.) Intraperitonealna holecistografija kod domaćih mesojeda. **[Intraperitoneal cholecystography in dogs and cats.]**—*Vet. Arhiv.* **18.** 31-40. [German and Russian summaries. Abst. from German summary.] **281**

For cholecystography in the domestic carnivores it is recommended that the contrast medium be injected intraperitoneally into the para-lumbar fossa with the aid of a Solomon's needle. The recommended doses of a 5% concentration of "jodtetragnost" [sodium tetraiodophenolphthalein] per kg. body weight are 0·1 g. for cats and 0·15 g. for dogs, and it is stated that these are readily tolerated. The injected contrast is completely absorbed in 20–30 min., and the optimal time for observation is 6–12 hours after injection. The only previous preparation necessary is to starve for a few hours.—A. N. Worden.

See also absts. **3** (testing of chemotherapeutic agents); **4** (examination of milk samples); **15** multiple-puncture tuberculin test); **16** (concentration of tubercle bacillus in sputum specimens); **18** (polysaccharide lysis test); **39** (enrichment media for *Salmonella*); **45-46** (diagnosis of brucellosis); **62** (cultivation of *V. fetus*); **79** (diagnosis of trichomoniasis); **92-94** (cultivation of F. & M. disease virus); **109** (propagation of swine fever virus in rabbits); **113** (diagnosis of canine infectious hepatitis); **125** (diagnosis of infectious bronchitis); **132** (allergic test in Q fever); **133** (staining of *Rickettsia*); **186** and **217** (electrocardiography); **204** (blood transfusion in animals); **219** (measuring of blood volume); **224** (judging of rumen organisms); **249-250** (bull semen diluents); **251** (heating appliance for microscopic examination of semen); **253-254** (pregnancy diagnosis and artificial insemination).

MISCELLANEOUS

Majilton, E. A. & Kelley, L. L. (1951.) **The blood and plasma bank.**—*Vet. Med.* **46.** 226-232. **282**

Instructions are given for establishing and maintaining blood and plasma banks for dogs in veterinary hospitals. Methods of collection, selection of donor dogs, storage of blood, transfusions and plasma production are described. Apparatus necessary for these operations is illustrated.—Anita M. Mandl.

Datta, S. (1951.) **Indian Veterinary Research Institute, 1890-1950.**—*Indian Fmg.* **11.** Spec. No. Diamond Jubilee. pp. 6-18. **283**

D. reviewed the history of the Indian Veterinary Research Institute (Mukteswar and Izatnagar), and the development of organized research into problems of livestock conservation and improvement in India, and gave an account of progress made during the past 60 years.

—M. R. Dhanda.

Zeetti, R. (1951.) La veterinaria in Turchia. **[Veterinary medicine in Turkey.]**—*Zooprofilassi.* **6.** 120-123. **284**

Turkey has only one school of Veterinary Medicine, at Ankara; it has a modern building and is well equipped. The Government Veterinary Service has two large laboratories at Pendik and Etlik, which have subsidiary laboratories in each "il" [equivalent of an English county]. There is a qualified veterinarian in each sub-station, who may be in some instances a general practitioner. There is also a Military Veterinary Service. The Government awards several scholarships each year. Many prophylactic preparations may be purchased from the State Laboratories, by farmers, the practitioner being paid for his work by the Government.—M. Bertani.

REPORTS

Great Britain. (1950.) **Ministry of Agriculture & Fisheries. Report on Animal Health Services for the year 1948, including Report of Proceedings under the Diseases of Animals Act for 1948.** pp. 50. London: H.M. Stat. Off. 1s. 6d **285**

Anthrax is enzootic only in a district of Northamptonshire, where 833 animals received spore vaccine. The anti-T.B. and anti-Contagious Abortion campaigns are proceeding satisfactorily; some three million heifer calves being now vaccinated against the latter disease. The country remained free from F. & M. Disease until September, after which 15 outbreaks oc-

curred in England; one attributed to infection brought from S. America in bones, and the others to migratory birds. About 1,600 animals were slaughtered. SWINE FEVER was limited to 27 outbreaks and 153 deaths. The severe outbreak of FOWL PEST was checked in March and only sporadic cases have occurred since. Much of the comparative freedom from disease is due to the strict quarantine laws controlling imports of live animals. Of 1,574 dogs and cats imported, three dogs died of RABIES while in quarantine, one rather more than six months after the date of its import. In 1,000 ruminants and pigs undergoing a period of quarantine before leaving the country, there was a small outbreak of CONTAGIOUS PUSTULAR DERMATITIS. SHEEP SCAB is decreasing and only 69 outbreaks are reported. EQUINE MANGE is practically eradicated.

Apart from the bacteriological and other work directly connected with disease, the laboratories tested disinfectants and investigated the mineral content of pastures. The report closes with a summary of the Veterinary Surgeons Act of 1948. Excellent tables are provided in the appendix.—R. MACGREGOR.

INDIA. (1950.) **Annual Report of the Indian Council of Agricultural Research for 1948-49. pp. 79.** Delhi: Manager of Publications. Rs. 1. or 1s. 6d. Items of veterinary interest pp. 33-50. 286

During the year the eighth meeting of the Animal Husbandry Wing of the Board of Agriculture and Animal Husbandry in India was held.

The I.C.A.R. continued the disease investigation schemes for cattle, sheep and goats and poultry in the various States. Search for a more satisfactory method of immunization against RINDERPEST was continued. Cattle and buffaloes could be successfully immunized by scarification with desiccated vaccine but goats showed severe reaction resulting in death in a few cases. Valle "O" type of F. & M. DISEASE virus has been found to be the most predominant in India. In animals, inoculated with crystal violet monovalent and bivalent vaccines, the immunity was found to be solid for 19 and 13 months respectively. Variable results were obtained with stored "Waldmann gel vaccine". In Bombay and Assam the incidence of BOVINE TUBERCULOSIS was high. In Hissar farm (East Punjab) incidence of this disease was reduced from 20% in 1940 to 1% during the year under review by regular testing and segregation of affected animals. Among sheep and goats examined at the Indian Veterinary Research Institute a high percentage were positive for JOHNE'S DISEASE. An outbreak of PASTEURELLOSIS in white Yorkshire pigs was studied. The disease could be transmitted to rabbits, guinea-pigs, crows, goats and buffaloes, but ducks, fowls and indigenous pigs were resistant. CONTAGIOUS ABORTION incidence was high among city cattle in the Central Provinces and Bombay. In Madras most of the animals vaccinated aginst BRUCELLOSIS calved normally. ENTERO-TOXAEMIA caused by *Clostridium welchi* has been found to be enzootic in Baroda. Tartar emetic and antrypol were used successfully on cattle for treating hump sores caused by *Stephanofilaria assamensis*. Among nutritional disorders, IODINE DEFICIENCY was encountered in Assam, FLUOROSIS in Central Provinces and AVITAMINOSIS A in Bihar. Investigations on the preparation of SHEEP POX vaccine were carried out in various States. Routine testing of birds for TUBERCULOSIS revealed very few reactors. Serum vaccination and pigeon-pox vaccine yielded good results against FOWL CHOLERA and FOWL POX respectively. NEWCASTLE DISEASE still causes the highest mortality in poultry in all provinces. A vaccine elaborated at Mukteswar gave satisfactory results. Mortality among vaccinated birds was very low; the only serious reaction being cessation of egg laying in 25–35% birds for periods of 3–4 weeks. Sulphamethazine and to a certain extent sulphaguanidine, sulphathiazole and stovarsol were found effective against COCCIDIOSIS. Investigations on the incidence and control of HELMINTHIASIS in livestock continued both at the Central laboratory and in the States.

The nutritive value of a number of indigenous grasses of Assam and the United Provinces was found to be high. Bargad (*Ficus bengalensis*) leaves had poor feeding value whereas pipal (*Ficus religiosa*) leaves formed a maintenance ration. Feeding of alkali treated straw induced better growth rate in young calves.

As previous cattle breeding schemes financed by the Council had failed, it was decided to close most of these and to concentrate on cattle breeding projects in selected areas where producers were organized on a co-operative basis. The Central Herd books for recognized indigenous breeds of cattle and buffaloes were maintained and enlarged. Sheep breeding schemes showed steady progress. Examination of 1,000 samples of milk collected from all over India showed that the average bacterial count during winter was 10,000 per ml. at the time of production to about 500,000 per ml. at the

time of delivery. The respective values for summer were 25,000 and 1,250,000.

Under Indian conditions, hand dressing of animals with gammexane powder is more suitable for killing ticks than dipping with arsenical solutions. *Hyalomma aegyptium* is by far the most common tick infesting cattle in North India while *H. bispinosa* and *Rhipicephalus haemophysaloides* are more common in South India.—S. N. Ray.

India. United Provinces. (1950.) **Annual Report of the Animal Husbandry Department for the year 1948-1949.** [Kaura, R. L.] pp. 61. Allahabad: Superintendent, Printing & Stationery, Uttar Pradesh. 287

The activities of the Animal Husbandry Department are described under nine different chapters *viz.* Administration, Disease Control, Research, Marketing, Breeding, Propaganda, Training, Finance and Establishment. Figures for preventive inoculations, treatment, castrations and mortality due to contagious diseases, etc., are tabulated.

Haemorrhagic Septicaemia and Rinderpest are the two common diseases. Eight districts were badly affected with Rinderpest as an after effect of the floods. The mortality was 21,563 as against 9,049 in the previous year. 722,485 animals were protected against Rinderpest as against 302,473 in the previous year. Haemorrhagic Septicaemia was responsible for the death of 11,543 animals as against 5,128 in the previous year. The number of outbreaks was 1,784 and 766,851 animals were protected as against 357,395 in the previous year. Other diseases, such as Anthrax, Blackleg, Surra, F. & M. disease also occurred. Deaths from Glanders were 272 as against 1 in the previous year. Fowl Cholera, Newcastle disease and Fowl Pox were also prevalent and the number of birds protected against each was 9,803; 12,204; and 1,302, respectively.

The total number of Veterinary Hospitals in the State was 212 and the number of in- and out-patients treated was 864,519. Besides 106,855 cases were supplied with medicine and the number of castrations undertaken was 246,649. Veterinary Assistant Surgeons on tour visited 29,439 villages and treated 32,477 cases of contagious diseases, 71,092 cases of non-contagious diseases and undertook 23,829 castrations.

The Biological Products Section supplied 1,116,700 doses of Rinderpest goat tissue virus and 938,050 doses of Haemorrhagic Septicaemia vaccine. Desiccated goat tissue vaccine is also used for immunization against Rinderpest in the field and in cold storage it keeps for 30 days.

The State is going ahead with dairy development and cattle breeding and has three Government Dairy Farms. Keventers' Dairy Farm, Aligarh, with its creameries—the biggest of its kind—was purchased and renamed the Government Central Dairy Farm.

The State has been divided into 9 regions for developing cattle breeding and suitable breeds of cattle and buffaloes allocated for each region. The number of breeding bulls and buffalo bulls was 4,557 and 1,040 respectively. For general improvement of cattle and buffaloes, certain schemes such as the 'Key Village' scheme and other cattle improvement schemes have been introduced along with artificial insemination centres in different parts of the State. Pure breeds of cows and buffaloes are also supplied as foundation stock. Concentration camps for unproductive stock have been established and salvage of dry cows is also carried out. Similarly horse and donkey, sheep and goat, pig and poultry breeding are also receiving attention.

The department is also devoting attention to proper flaying of hides and skins. In 303 slaughter houses 48,895 cattle, 170,774 buffaloes, 305,820 sheep, 519,952 goats, 2,616 pigs and 1,933 other animals were slaughtered during the year.—M. K. Sreenivasan.

Kenya. (1951.) **Veterinary Department Annual Report, 1949.** pp. 61. Nairobi: Govt. Printer. Sh. 4. 288

Bovine Contagious Pleuro-Pneumonia constitutes the major disease problem and appears to be endemic in certain areas owing to the difficulty in enforcing quarantine regulations.

The position with regard to Trypanosomiasis, F. & M. Disease and Rabies remains unchanged.

Following a steady reduction in the incidence of Rinderpest from 1940-48, there was a severe outbreak as a result of using KAG vaccine contaminated with virulent Rinderpest virus. Prompt and vigorous action limited the outbreak to the primary foci of infection.

An acute condition known as "Haemorrhagic Diethesis" is described as occurring in cattle in undeveloped high altitude pastures. Symptoms are high temperature, petechiae and passage of blood stained faeces. The condition is often fatal, but cattle may become acclimatized or resistant.

Tuberculous-like lesions of the lymph nodes of pigs had as primary cause either

Corynebacterium equi or *C. ovis;* as secondary organisms *Bact. coli,* haemolytic streptococci, bipolar bacilli and tubercle bacilli were sometimes present. *C. pyogenes* was not present.

In cultivating *Clostridium chauvoei* for vaccine production, bovine liver and meat medium was found to be as efficient as the more generally used horse-meat medium. To produce an efficient vaccine a highly virulent strain is desirable. For testing the potency of the vaccine sheep were found to be more reliable test animals than g. pigs.

HAEMORRHAGIC SEPTICAEMIA of cattle was studied and none of the sulphonamides had any antagonistic effect on Kenya strains of *Pasteurella boviseptica.*

A preliminary investigation of CAPRINE CONTAGIOUS PLEURO-PNEUMONIA indicated that the disease in Kenya is pathologically the same as that in India.

New premises were brought into use for the preparation of goat virus RINDERPEST vaccine. Tests of the potency of vaccine were conducted on separate premises to avoid risk of contamination of the new unit with virulent bovine virus. Improvements were made in the technique of vaccine production by the use of Latapie mincers, "deep-freeze" refrigerators, and Edwards freeze drying machines. The possibility of developing a haemagglutination-inhibition test for RINDERPEST was under investigation. A strain of lapinized virus was maintained and laboratory and field tests were made.

The cultivation of *Trichomonas foetus* on the chick embryo was under investigation and six passages were obtained. Attempts were also made to grow the virus of BOVINE MALIGNANT CATARRH on the chick embryo and one line of virus has been maintained for 14 generations. It is not yet certain that the virus has become adapted.

Aureomycin was found to be efficacious in treatment of HEARTWATER.

A report is given on the tsetse and TRYPANOSOMIASIS survey and control.

—W. S. MARSHALL.

EAST AFRICA. (1950)) **East Africa Tsetse and Trypanosomiasis Research and Reclamation Organization. Annual Report, 1950.** [LESTER, H. M. O.] pp. 56. Nairobi: East Africa High Commission. 289

Workers at Tinde Laboratory have come to the conclusion that *T. brucei, T. rhodesiense* and *T. gambiense* are not distinct species but varieties within the same species—any animal capable of carrying *T. brucei* is a potential "absorber" of trypanosomes infective to man.

In the field of antrycide research it has been decided that the drug cannot be used for large scale protection of cattle because of the rapidity with which *T. congolense* and *T. vivax* acquire a resistance to it. It is thought that there may be a secondary form of TRYPANOSOMIASIS in cattle. Evidence has been accumulated of cryptic infections and severe parasitic involvement of the heart in cattle protected with antrycide or dimidium bromide.

The organisation has on hand three tsetse reclamation schemes. The areas being dealt with are the *Glossina morsitans* belt of Ankole district in Uganda, the Masai area in Kenya, and the Mkata plains area in Tanganyika. The game destruction experiment in Tanganyika for the elimination of tsetse resulted in the disappearance of *G. morsitans* and *G. swynnertoni.* It is not certain whether or not *G. pallidipes* has been eliminated. This result was achieved by the killing of 8,553 head of animals (only the large game animals) between 1940-50. Studies of tsetse behaviour and requirements are proceeding with the object of attacking the fly at its most vulnerable point and in the most economical manner. Plant ecology and topography in relation to fly habits and control are discussed and the report concludes with descriptions of the experimental reclamation schemes.—W. S. MARSHALL.

BASUTOLAND. (1948.) **Annual Report of the Department of Agriculture for the year ending 30th September, 1948.** pp. 34. [Items of veterinary interest pp. 19-27.] 290

Experimental reduction of livestock from 3·7 acres per head of large stock to five acres per head, or an equivalent number of small stock combined with rotational grassland management is being carried out on an area of 3,700 acres of land, on which 793 people live. Progress with this work is hindered by lack of co-operation by the Chiefs.

Owing to the large numbers of donkeys in the Protectorate and their tendency to increase, importations have been virtually prohibited.

One severe outbreak of ANTHRAX in Mafeteng among one thousand head of cattle was controlled by vaccination. Although only one case of BLACKLEG was diagnosed the disease is said to be widespread. The demand for vaccination by Basuto cattle owners is increasing.

Only 181 doses of ANAPLASMOSIS (GALL-SICKNESS) vaccine were used. The indigenous cattle appear to be resistant, but improved types imported from areas free from the disease are susceptible to infection.

LUMPY SKIN DISEASE which spread to all Provinces of the Union of South Africa was

confined to the western area of Basutoland. There were no deaths but in some animals there were disturbances of general health and loss of condition.

STRANGLES and MANGE have been prevalent among equine animals. The STRANGLES was of a severe type and some animals died. Sulphonamides are effective in treatment. Veterinary and livestock officers of the department carry out all treatment such as inoculations, the dehorning of cattle, castrations, etc.

—J. A. GRIFFITHS.

UGANDA PROTECTORATE. (1947.) **Annual Report of the Veterinary Department for the year ended 31st December, 1946.** [MACKINTOSH, W. L. S.] [Includes report of the Senior Veterinary Research Officer (Wilson, S. G.)] pp. 32. Entebbe: Govt. Printer. Sh. 2/-. **291**

The acute shortage of staff continued throughout the year.

Tsetse fly continue to advance from the TRYPANOSOMIASIS infected areas. In many places *Glossina pallidipes* appears to be assuming a more important role as a vector of TRYPANOSOMIASIS. A new department of "Tsetse Control" with its own Director was created to ensure co-ordination of all anti-tsetse measures. Tsetse fly have advanced in the north to the south and west causing heavy mortality among livestock in the district of Acholi, Lango and Karamoja. Large areas of country have become untenable for cattle. In Northern Uganda tsetse extended southward, denuding the Sazas of Buruli and Bugerere of about 17,000 cattle. One half of Uganda is now infested by tsetse fly and so far there is no known means of halting this pest effectively. TRYPANOSOMIASIS continues to spread also through contact between healthy animals and infected herds. The use of phenanthridinium 1553 was extended, 14,000 cattle being treated with varying success. Photosensitization occurred in a number of cases.

RINDERPEST occurred only in the Teso and Lango districts. In Teso 28,027 cattle and in Lango 44,703 cattle were immunized with Kenya attenuated goat virus; mortality after inoculation was 3%. A second outbreak occurred in Teso in which 1,612 cattle were immunized. In addition 115,627 cattle were immunized to form an immune barrier along the Uganda-Kenya border.

BOVINE CONTAGIOUS PLEURO-PNEUMONIA re-entered Mbale district early in 1945 and at the end of that year the general position caused anxiety owing to the ability of the disease to remain latent for considerable periods. An outbreak occurred in a herd on the fringe of the original focus in North Sebei. About 15,000 animals were inoculated during the outbreak. Throughout the Sebei plain and in South East Teso herd registration and branding, and also periodic counting and examination were introduced, as safeguards against introduction of infection by tribal raiding or illicit cattle barter.

An outbreak of ANTHRAX was diagnosed in the Mbale district and South Teso. The use of ANTHRAX vaccine reduced losses rapidly. Losses amounted to about 400; a total of 7,360 cattle were vaccinated.

BLACKLEG in sporadic form is more widely spread than ANTHRAX. 13,459 cattle were vaccinated.

EAST COAST FEVER causes heavy losses among calves. In areas where animal management has improved, losses have been reduced to a minimum, although ticks are plentiful.

RABIES has been endemic in West Nile District for several years. An infected dog was found near Mbale and since then three other dogs and two human cases, both fatal, have occurred.

F. & M. DISEASE occurred in Teso and in central Buganda during the year.

KYOGO SKIN DISEASE was recorded in Lango and in Teso. It was localized in extent and was quickly controlled by quarantine.

Early in 1946 the Director of Agriculture and the Director of Veterinary Services set up an Animal Husbandry Committee consisting of officers of both Departments. This body does useful work in matters connected with animal husbandry and mixed farming.

At Mbarara Stock Farm an experiment with D.D.T. solution to control *Stomoxys* by spraying cattle once a fortnight proved fairly effective. Over 18 weeks' observation fly counts dropped from 27,000 to 1,000 per catch.

In a general review of the disease position for the period 1939-45 it is shown that RINDERPEST has been brought under control through the use of Kenya goat virus, which has been quite successful except among the highly susceptible Ankole cattle.

Detailed procedure for opening the cranial cavity of dogs suspected of being infected with RABIES are given. Six cases were confirmed. *Balantidium coli* was found to occur in young pigs. The chief lesion was "chronic gastritis". The disease was associated with coarse feeding (*Setaria* and *Sorghum* grasses); 208 dogs and cats were treated for HELMINTH INFESTATION, DEMODECTIC MANGE, SARCOPTIC MANGE, *Trypanosoma brucei* INFECTION and DISTEMPER.

Details are given of laboratory routine work.

The only laboratory products are fowl typhoid vaccine and the 1% bromide phenanthridinium solution used in the field.

—J. A. GRIFFITHS.

FALKLAND ISLANDS. (1950.) **Department of Agriculture. Annual Report for 1950.** pp. 4. [Mimeographed.] 292

There is no veterinary surgeon on the islands, but the agricultural officer maintains a stock of drugs and disinfectants for free issue. He also treats accidents, calving cases, makes P.M. examinations, and issues death certificates and certificates of health to cover insured pedigree rams and other stock. Advice is also given in respect of all ailing animals by telephone or otherwise.

Wool is the chief product and "the year's clip . . . has fetched prices such as the farmers themselves can hardly believe".

Work has been started by the Colonial Development Corporation on a refrigerifico.

The sheep population is 611,168 and cattle number only 11,138. 63 rams were imported from New Zealand, Chile and Argentina.—M.C.

BOOK REVIEWS

LUCK, J. M., LORING, H. S. & MACKINNEY, G. [Edited by.] (1951.) **Annual review of biochemistry. Vol. 20.** pp. ix+648. Stanford, California: Annual Reviews, Inc. $6.00. 293

The annual Review of Biochemistry for 1951 contains the following contributions: Biological Oxidations, R. Wurmser; Nonoxidative, Nonproteolytic Enzymes, W. R. Frisell & L. Hellerman; Carbohydrate Chemistry, H. O. L. Fischer & D. L. MacDonald; The Polyuronides, C. L. Hinton; Chemistry of the Lipids, K. F. Mattil; The Chemistry of the Amino Acids and Proteins, K. Bailey & F. Sanger; X-Ray Chrystallographic Studies of Compounds of Biological Interest, R. B. Corey; Nucleic Acids. Purines, and Pyrimidines, J. Baddiley; Lipid Metabolism, S. Gurin & D. I. Crandall; The Metabolism of Proteins and Amino Acids, H. Borsook & C. L. Deasy; Biochemistry of Steroids, S. Lieberman & K. Dobriner; Fat-Soluble Vitamins, H. Dam; Nutrition, H. J. Almquist; Biochemistry of Cancer, A. M. Brues & E. S. G. Barron; Biochemistry of Antibiotics, R. L. Peck & J. E. Lyons; Immunochemistry, M. M. Mayer; The Metabolism of Drugs and Toxic Substances, R. T. Williams; Biochemical Genetics, N. H. Horowitz & H. K. Mitchell; Biochemistry of Natural Pigments (Exclusive of Haeme Pigments and Carotenoids), T. R. Seshadri; Carbohydrate Metabolism, S. P. Colowick & N. O. Kaplan; and Water-Soluble Vitamins, G. Emerson & K. Folkers. Comprehensive lists of references follow each section and there are good author and subject indexes at the end of the book. The present volume maintains the high standard of its predecessors.—E.M.J.

TANNENBAUM, A. [M.D. Director, Dept. of Cancer Research, Medical Research Institute, Michael Reese Hospital, Chicago.] [Edited by.] (1951.) **Toxicology of uranium. Survey and collected papers.** pp. xxvi+333. New York, Toronto & London: McGraw-Hill Book Co., Inc. 1st Edit. $3.00 (25s. 6d.). 294

A very worthy addition to the invaluable National Nuclear Energy Series, which must be read by all who have an interest in the handling of uranium compounds. The subject has received attention from every aspect, but covering as it does only the work of groups of American authors, it must inevitably suffer from the defects which might be absent from a more inclusive volume. The experimental results are accurately and adequately recorded, and the tests well designed. The surprisingly high uranium content of animals kept out of all experimental contact with the metal and its compounds is a fact which was remarked upon, but which is worthy of a more thorough investigation.—F. R. HARRIS.

ANON. (1951.) **Meat packaging and processing.** (Report of a visit to the U.S.A. in 1950 of a productivity team representing the meat packaging and processing industry.) pp. xii +72. New York & London: Anglo-American Council on Productivity. 4s. 295

The Report of the Productivity Team which visited America in 1950, under the auspices of the Anglo-American Council on Productivity, to study American methods of Meat Packaging and Processing gives a comprehensive survey of this important American industry from the farm to the abattoir and thence to the final processing of the food.

The team visited most of the large American food packaging concerns and were given facilities there to observe the processes and methods used in all departments and thus gained a true appraisal of their achievement in modern plant conducive to labour economy.

Sections of the Report are devoted to the Meat Industry in America, Productive Methods, Packaging, Research, Engineering and Buildings, Administration and Industrial Relations and on Veterinary Inspection.

Despite its importance, however, this latter section is one of the shortest in the Report, and it would appear regrettable that a veterinarian with a knowledge of meat inspection was not included as a member of the Team. Had this been done, the Team would have avoided some of the criticisms it makes on English inspection and a more balanced view would have been obtained. The Recommendations of the Team, too, while sound in their purpose would have benefited by the presence of a veterinarian at the conference table.

The Report is well illustrated with informative plans and photographs.

—H. THORNTON.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

CLIFTON, C. E. [Edited by.] (1951.) **Annual review of microbiology. Vol. 5.** pp. ix+379. Stanford, California: Annual Reviews Inc. $6.00.

DIBLE, J. H. [Edited by.] (1951.) **MacLennan's Recent advances in bacteriology.** pp. vii+325. London: J. & A. Churchill Ltd. 25s.

DYER, H. M. (1949.) **An index of tumour chemotherapy. A tabulated compilation of data from the literature on clinical and experimental investigations.** pp. 329. Bethesda, Md.: Federal Security Agency, Public Health Service. [Issued free of charge to Libraries and Research Organizations.]

HAMMOND, J., BROWNE, F. J., & WOLSTENHOLME, G. E. W. [Edited by.] (1950.) **Toxaemias of pregnancy, human and veterinary. A Ciba Foundation Symposium.** pp. xii+280. London: J. & A. Churchill Ltd. 21s.

HUNGERFORD, T. (1951.) **Diseases of poultry.** pp. 427. Sydney: London: Angus & Robertson. 2nd Edit. revised and enlarged. 63s.

PALTRINIERI, S. (1951.) Aggiornamenti di malattie infettive. **[Infectious diseases.]** pp. 335. Pisa: Lit. D. Tacchi & Figlio.

PINCUS, G. [Edited by.] (1951.) **Recent progress in hormone research. The Proceedings of the Laurentian Hormone Conference. Vol. VI.** pp. 431. New York: Academic Press Inc. $8.50.

SCHOENBERG, F. & ZIETZSCHMANN, O. Die Ausführung der tierärztlichen Fleischuntersuchung mit besonderer Berücksichtigung der anatomischen Grundlagen und der gesetzlichen Bestimmungen. **[Practical meat inspection.]** pp. viii+332. Berlin: Paul Parey. 4th Edit. DM. 37.

SUTER, C. M. [Edited by.] (1951.) **Medicinal chemistry. Vol. I.** pp. vii+473. New York: John Wiley & Sons, Inc. London: Chapman & Hall Ltd. $12.00 or 80s.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey

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Miscellaneous Bulletin No. 24.—A Brief Survey of some of the Important Breeds of Cattle in India, Part II ; 2nd edition, with 30 plates ; price, Rs. 1/6/-.

Scientific Monograph No. 17.—Poisonous Plants of India by R. N. Chopra, Badwar and Ghosh.

Publications shortly to be released from press.

Bulletin No. 46.—A Brief Survey of some of the Important Breeds of Cattle in India. Part III ; 2nd edition.

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Commonwealth Bureau of Animal Health, Weybridge.

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Commonwealth Bureau of Animal Nutrition, Aberdeen.

15. Minerals in pasture. Deficiencies and excesses in relation to animal health. By F. C. Russell. May, 1944 ... ... 5s. 0d.
16. Diet in relation to reproduction and the viability of the young. Part 1. Rats and other laboratory animals. August, 1946 ... ... 6s. 0d.

Commonwealth Bureau of Animal Breeding and Genetics, Edinburgh.

The semen of animals and its use for artificial insemination. By James Anderson. Spring, 1945 ... ... 7s. 6d.

Commonwealth Bureau of Pastures and Field Crops, Aberystwyth.

36. The grasslands of Latin America. By Miss G. M. Roseveare. Late 1946 ... 20s. 0d.
38. Advances in grassland husbandry and fodder production. Second symposium. Late 1946 ... ... 6s. 0d.

Commonwealth Bureau of Plant Breeding and Genetics, Cambridge.

The new genetics in the Soviet Union. By P. S. Hudson and R. H. Richens. May, 1946 ... ... 6s. 0d.

Commonwealth Bureau of Soil Science, Harpenden.

43. Land classification for land-use planning. June, 1946 ... ... 4s. 0d.

Commonwealth Mycological Institute, Kew.

An annotated bibliography of medical mycology, 1945. 1946 ... ... 5s. 0d.

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